MASTER'S THESIS

Geopolitics of foreign aid: Evidence from South Asian economies.

Ali Abbas, Syed

Award date:
2017

GEOPOLITICS OF FOREIGN AID: EVIDENCE FROM SOUTH ASIAN ECONOMIES

By

Syed Ali Abbas

Submitted in total fulfilment of the requirements of the degree of

Master of Philosophy

School of Business

Bond University

Australia

October 2016

ABSTRACT

This empirical study constructs a new instrument for measuring the geopolitical potential of South Asian countries, and investigates its role in influencing the bilateral aid and multilateral aid decisions directed to the South Asian region during the post-Cold War period (1991-2013). The study observes a polynomial relationship between the geopolitical potential and bilateral aid from DAC donors. Moreover, the strategic or geopolitical interests of main DAC donors have been found significant not only during the War on Terror period, but over the entire period. Therefore, the bilateral aid especially from DAC donors has never been disassociated from geopolitics during the post-Cold War period, either; it was strongly influenced by recipients' geopolitical potential or donors' geopolitical interests. Similarly, the bilateral aid from Non-DAC donors and multilateral aid have also been found to be significantly influenced by the geopolitical potential of South Asian recipients. Furthermore, evidence is found to support the contention that the lending decisions by multilateral bodies are influenced by the main DAC donors.

Keywords*: Geostrategic Importance, Geopolitical Potential, Foreign Aid, DAC donors, Non-DAC donors.*

DECLARATION

This thesis is submitted to Bond University in total fulfilment of the requirements of the degree of Master of Philosophy. This thesis represents my own original work towards this research degree and contains no material which has been previously submitted for a degree or diploma at this University or any other institution, except where due acknowledgement is made.

Syed Ali Abbas

School of Business

Bond University

Robina 4229

Australia

ACKNOWLEDGEMENT

"In the name of Allah, the Most Beneficent, the Most Merciful"

Firstly, being a believer, I would like to thank Almighty Allah for blessing me with this opportunity, and enabling me to work with motivation, spirit, consistency, and good health.

Secondly, I would show my gratitude to my parents who provided me full support in all respects, and have always been praying for my success. I feel proud of their care, tenderness, and efforts to make me enable to achieve something. I owe much appreciation to my wife, Maryam, whose support and care always reached to me though I remained away from her for one and a half year to undertake this research degree. My son, Haider, who has been neglected much in his early years of life. His cheers, smiles, unclear and broken language, and little hugs were missed a lot during this program. I am thankful to my siblings, Khurram, Hassan, Iram, and Zaira for their support and care.

By heart, I am very thankful to my supervisors, Dr. Neil Campbell, and Dr. Kuldeep Kumar, for their continuous support and guidance. I also appreciate the freedom that I received from them to undertake this research, and truly respect their trust in me.

I take this an opportunity to show my heartiest gratitude and deep respect to other fellows of Economics Department especially Dr. Gulasekaran, and Dr. Safdar Khan, for their guidance and support that remained with me during this research exercise. I acknowledge the support received from research office and program coordinator.

Like always, I am indebted to my mentors, Syed Toqueer Akhtar, Lahore School of Economics, Pakistan, and Dr. Shabib Haider Syed, Forman Christian College (A Chartered University), Pakistan, for their intellectual as well as moral support.

I owe great appreciation for the support received from fellow research students especially Habib during this research journey.

TABLE OF CONTENTS

ABBREVIATIONS

AfDB	African Development Bank
AfDF	African Development Fund
AFESD	Arab Fund for Economic and Social Development
AsDB	Asian Development Bank
BADEA	Arab Bank for Economic Development in Africa
CarDB	Caribbean Development Bank
CIA	Central Intelligence Agency
CIF	Climate Investment Funds
DAC	Development Assistance Committee
DOTS	Direction of Trade Statistics
DW	Durbin-Watson
EBRD	European Bank for Reconstruction and Development
EIA	Energy Information Administration
EIU	Economic Intelligence Unit
FE	Fixed Effects
FH	Freedom House
GDF	Global Development Finance
GDP	Gross Domestic Product
GEF	Global Environment Facility
GFS	Government Finance Statistics
GNP	Gross National Product
GPI	Geopolitical Potential Index
HCTB	High Causality Terrorist Bombings

HDI	Human Development Index
HF	Heritage Foundation
IAEA	International Atomic Energy Agency
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IDB	Inter-American Development Bank
IFAD	International Fund for Agriculture Development
IFC	International Finance Corporation
IFI	International Financial Institutions
IMF	International Monetary Fund
KMO	Kaiser-Meyer-Olkin
LSDV	Least Square Dummy Variables
NATO	North Atlantic Treaty Organization
NSI	Non-Standardised Index
ODA	Official Development Assistance
OECD	Organization for Economic Co-operation and Development
OFID	OPEC Fund for International Development
OLS	Ordinary Least Squares
OSCE	Organization for Security and Cooperation in Europe
PCA	Principal Component Analysis
SIPRI	Stockholm International Peace Research Institute
UK	United Kingdom
UN	United Nations
UNAID	United Nations Fund for HIV/ AIDS
UNDP	United Nations Development Programme

UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environmental Programme
UNFPA	United Nations Population Fund
UNGA	United Nations General Assembly
UNHCR	United Nations High Commission for Refugees
UNICEF	United Nations Children Emergency Fund
UNPBF	United Nations Peace Building Fund
UNRWA	United Nations Relief and Works Agency
UNSC	United Nations Security Council
UNTA	United Nations Transition Assistance Group
US	United States
VAR	Vector Auto-Regressive
WB	World Bank
WDI	World Development Indicators
WFP	World Food Programme
WHO	World Health Organization
WoT	War on Terror

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

The effectiveness of aid in terms of its impact on economic well-being has remained disputed. Interlinked with this question is the question of what motivates this aid. That is, to what extent is the donation of aid motivated by geopolitics (and other self-interested concerns) and to what extent is it motivated by altruistic considerations? Foreign aid, from the perspective of its objectives, has passed through various stages since the beginning of the last century. In the first half of last century, the four main reasons identified were humanitarian relief, development, diplomacy, and commerce. However, the second half also included secondary objectives like promotion or expansion of donors' language, culture or religion.[1] Governments have long provided subsidies, grants, bribes, and other transfers connected to commercial and diplomatic interests including international security, strategic and political motives, but the transfer of the concessional public resources aimed to raise development, is a '*twentieth-century innovation'*, and a new phenomenon in relations between countries.'[2]

The recipients' needs and donors' motives have been addressed in a number of studies carried out on aid selection and allocation. The literature reveals that aid has been greatly used by donors for their ideological, economic, political and strategic interests. Studies[3] focusing on the Cold War period have clearly found the significance of strategic interests of main donors along with other prime economic and political factors. Some witnessed that the overwhelming strategic interests lost their potential by the end of Cold War, but recent studies have observed the re-emergence of strategic and political interests in the aid allocation process since the start of the War on Terror.

Most of the studies attempted to determine the strategic or geopolitical interests of donors, used a large amount of variables to explain the strategic role of aid disbursed by donors[4]. Conversely, this study ties the literature of strategic interests of donors with recipients' strategic importance. We argue that the donors' vested interests actually respond

[1] Lancaster (2008)
[2] *Ibid*
[3] Ball & Johnson, 1996; Meernik et al., 1998; Lai, 2003; Berthelemy & Tichit, 2004; Dunning, 2004; Moss *et al*., 2005; Boschini & Olofsgard, 2007; Fleck & Kilby, 2010.
[4] McKinlay & Little, 1977; 1978; Hess, 1989; Ball & Johnson, 1996; Schraeder *et al.*, 1998; Meernik *et al.*, 1998; Boschini & Olofsgard, 2007.

to the geopolitical potential of recipients. Countries with high values of geopolitical potential are preferred by donors than countries with low geopolitical potential.

This study gathers and rearranges different ideas to construct a new instrument for measuring the '*geopolitical potential'*. The earlier literature considered the overall economic aid in exploring the motivations behind aid but recent studies have explored the varying behaviour of different donor groups, therefore, this study is organized to determine the behaviour of donors separately. This study examines the role of geopolitical potential in influencing the bilateral aid both from Development Assistance Committee (DAC) members of Organization of Economics Cooperation for Development (OECD) and non-DAC donors[5], as well as multilateral aid directed to the South Asian region.

Applying factor analysis, we derived some important factors: *geostrategic importance* (mainly based upon geographical features, natural and man-made resources like infrastructure), *external defence policy, political globalization* and *UN voting decisions* explaining geopolitical potential of recipients on a mutual base. Further, we aggregate these factors based upon appropriate statistical methods to develop an index of geopolitical potential of South Asian economies.

The experts on geopolitics or national power strongly point to the vital role of economic potential, population and recently acquired nuclear-capabilities in shaping national power. Since the literature on aid motivation has greatly used economic potential (economic growth or income) and population distinctly because of their important role in explaining supplies of aid. Therefore, we are observing these important determinants along with nuclear capabilities independently rather dissolving their particular significance in constructing index of geopolitical potential, based on common features.

Reynaud and Vauday (2009) used factor analysis to determine the geopolitical significance of countries and found geopolitical potential playing an important role in shaping IMF lending decisions especially for non-concessional loans. This study extends the empirical literature on the strategic role of aid to further heights, giving a more comprehensive picture of the relationship between multiple donors and recipients.

[5] See Appendix I for classification of bilateral donors into DAC and non-DAC groups (on page 104)

Overall, this study confirms the strong significance of geopolitical potential of South Asian countries in affecting aid decisions by DAC and Non-DAC donors, as well as by multilateral agencies. In the case of DAC donors, we observed a polynomial relationship between geopolitical potential and bilateral economic aid. This indicates that aid initially rises with a rise in geopolitical potential but later starts diminishing. The phase of increasing returns explains the mixed picture of geopolitical potential and socio-economic conditions while the diminishing pattern portrays the more powerful status of geopolitical potential and blurred face of socio-economic conditions. The geopolitical potential based upon geographical features, natural and man-made resources (particularly large infrastructure), and military capabilities makes it less likely to receive aid after reaching a certain height. This can be explained because of improvement in man-made resources, i.e., when a country develops certain sources to take advantage of its geography and natural resources, by developing a higher level of infrastructures. This stage may also indicate the disbursement of aid mainly on developmental objectives or based on donors' geopolitical interests rather recipients' potential. Further, it also shows a transition of a country from a recipient to a donor.

We also observe a relationship between military assistance from the US and bilateral economic aid from DAC donors. The empirical findings suggest that the geopolitical potential attracts both the US military aid and DAC economic aid but the effect has been observed stronger in influencing economic aid than military aid. We also find that DAC economic aid follows military assistance from the US. The potential reason could be a gained strength in military capabilities due to military assistance which further raises geopolitical potential. This potential explanation has not been addressed in the literature though this is beyond the scope of this study, therefore, a separate study can be carried out to explore this link.

The geopolitical potential of recipients during the War on Terror (WoT) has not been observed significant while the geopolitical interests of donors (measured by an alliance with the US during the WoT) have been observed quite important in shaping lending decisions by DAC donors. Hence, we argue that the DAC economic aid has always been influenced by geopolitics in our respective period, either the geopolitical potential of recipients or the donors' geopolitical interests.

Similarly, the bilateral economic assistance from Non-DAC donors is also significantly influenced by the geopolitical potential of recipients. Generally, there is a positive relationship between geopolitical potential and aid disbursed by Non-DAC donors. We found some anomalies here, the countries with a very high geopolitical potential (like India and Pakistan) are given more aid compared to rest of the South Asian economies like Bangladesh, Nepal and Sri Lanka, which appeared with negative intercepts in fixed effect estimations. The WoT period has not been observed significant in case of Non-DAC aid. On average, India received a negative aid from non-DAC sources since 1991 till 2013. This indicates less fresh flows than payments of existing loans. It may be likely due to India's very high geopolitical potential relative to Non-DAC donors than DAC donors. Recently, India has also joined a club of donors.

Our study confirms the findings of Reynaud and Vauday (2009) that multilateral aid from all sources (including IMF) has been significantly influenced by geopolitical potential. The relationship has been observed positive. Remarkably, the War on Terror period has been found important in shaping multilateral aid decisions, relative to its insignificance in case bilateral aid, both from DAC and Non-DAC donors. Further, the influence of geopolitical interests of main DAC donors has been observed significantly important in advancing multilateral aid. Comparatively, this study confirms that geopolitical potential of recipients affects more strongly than geopolitical interests of donors in multilateral aid decisions.

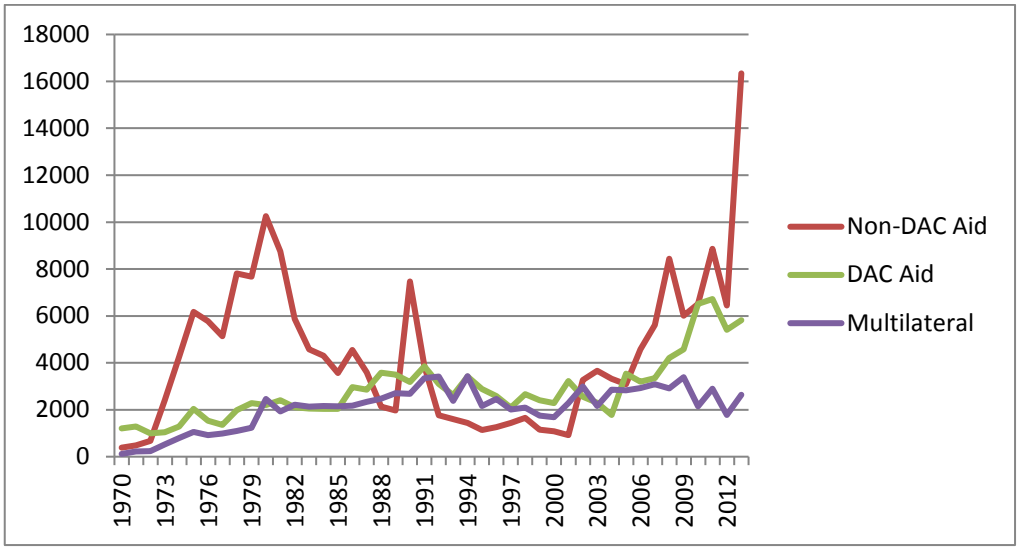
Summing up, our study clearly identifies the strong influence of non-developmental objectives of aid disbursed by different donors to South Asian economies either based on significance of geopolitical potential of recipients or donors' geopolitical interests.

1.1 Aid to South Asia

South Asia has been given preference in aid allocation but the question of motivation behind aid remains unsolved. The bilateral and multilateral aid flows to South Asia have always remained higher than Latin America but lesser than Africa region (see Figure 3). Why aid has been given to these two regions? Many aid scholars have attempted to identify the motivation behind aid directed to African and Latin American regions but no such attempt has been made on South Asian countries which share some common economic, social, political and governance problems.

Figure 1 exhibits the overall gradual rise and parallel movement of bilateral aid from DAC sources and multilateral aid to South Asian region. Both multilateral and bilateral aid remained very close till 2007 but ended up with divergence during the WoT. However, the bilateral aid flows from non-DAC sources have been fluctuating sharply over the period. Generally, three episodes of rising patterns of DAC aid can be observed between 1972 to 1979; 1985 to 1990; and 2003 till 2010, with periods of overall fall connecting them.

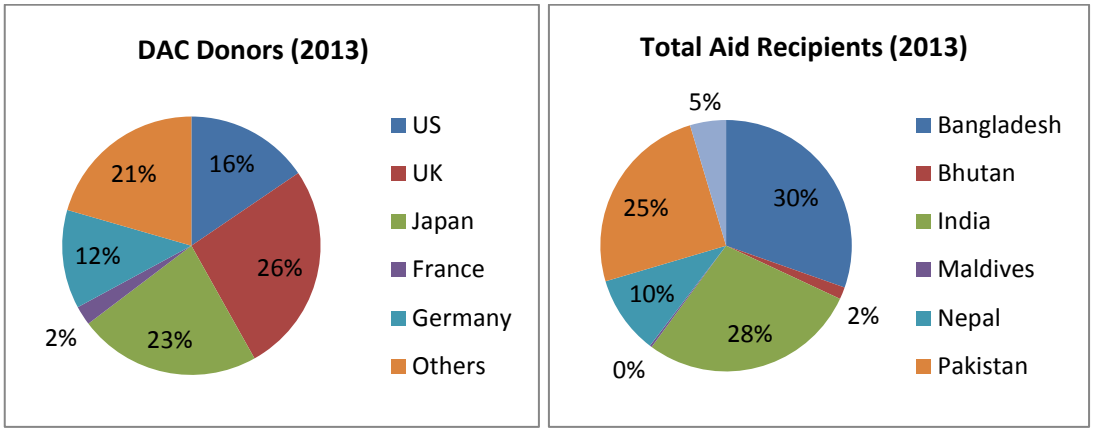
Figure 1: Bilateral (from DAC and Non-DAC Sources) and Multilateral Flows to South Asia (million US$)



Source: OECD Aid Statistics (2014)

Historically, the United Kingdom, the United States, and Japan have been the major bilateral aid donors to the South Asian economies: Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. Other major bilateral donors are Germany, France, and Australia. Japan, UK, and the US contribute almost two-third of the total bilateral aid disbursed by DAC members to South Asia and adding France and Germany makes it to 80 per cent (see Figure 2). India and Pakistan have been standing among the top aid recipients of US Aid for last four to five decades. Currently, Bangladesh, India and Pakistan are major recipients in South Asia, sharing 83 per cent of the total flows of aid disbursed to the region (according to OECD Aid statistics, 2014). Similarly, International Financial Institutions (IFIs) have always given importance in lending to some of the South Asian Economies like India and Pakistan. This raises concern why some of the South Asian countries fall in top aid-recipients?

Figure 2: Share of Bilateral Flows from DAC Sources and Share of South Asian Economies in Total Aid



Source: OECD Aid Statistics (2014)

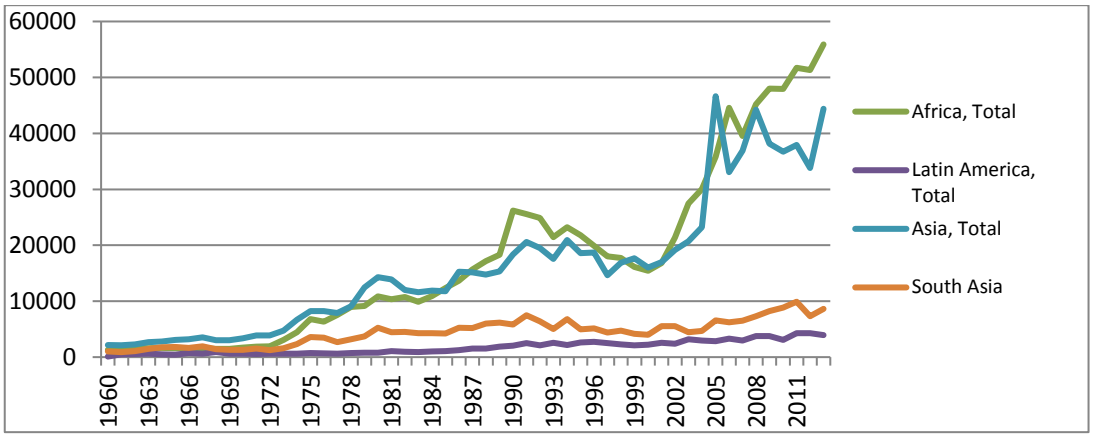
1.2 Motivation

The developmental effect of aid has remained disputed among researchers. Many scholars challenge the welfare impact of aid disbursement based upon the factors that motivate the donors and drive aid to developing countries from bilateral and multilateral channels. The literature reaches a consensus that aid has been greatly used by donors for their ideological, economic, political and strategic interests especially during the Cold War period. One stream of literature views that these interests gradually diminished afterwards and turned into more developmental objectives,[6] while a second stream points out the re-emergence of strategic interests of donors especially since the War on Terror.[7] Numerous studies have been carried out to investigate the aid allocation process and its impact on Latin American [8] and African[9] countries. There has been no significant study undertaken on South Asia regarding the aid disbursement. The few studies[10] have been done in recent times regarding the impact of aid on South Asian economies that have always been given higher aid compared to Latin America (see Figure 3).

[6] Ball & Johnson, 1996; Meernik *et al.*, 1998; Lai, 2003; Berthelemy & Tichit, 2004; Dunning, 2004; Boschini & Olofsgard, 2007.
[7] Moss *et al.*, 2005; Fleck & Kilby, 2010.
[8] Baines, 1972; Kaplan, 1975; Fitch, 1979; Schoultz, 1981; Pach Jr., 1982; Cingranelli and Pasquarello, 1985; McCormick and Mitchell, 1988; Gereffi, 1989; Gang and Lehman, 1990; Poe, 1991; 1992; Katada, 1997.
[9] Gulhati & Nallari, 1988; Ball & Johnson, 1996; Riddell, 1999; Goldsmith, 2001; Dunning, 2004; Stone, 2004; Harrigan *et al.*, 2006; Travis, 2010.
[10] Asteriou, 2009; Bhavan *et al.*, 2011.

The aid to South Asia has increased gradually over time, but less proportionately compared to Africa (see Figure 3 below). The flows of aid to South Asian region remained equal to African region till early 1970s. Later, the gap continued to widen as Africa starting receiving overall more aid than any other region.

Figure 3: Regional Flows of Total Aid (million US$)



Source: OECD Aid Statistics (2014)

The South Asian regional countries have some common continuing economic and social problems like corruption, poor governance, economic and social disparity, ineffective institutional quality, and militarism. The well-being and standard of living, measured by human development index has always remained higher in South Asia compared to Africa (see Table 1) but some of the South Asian countries fall in top aid recipients. This catches further attention to determine the motivation behind aid allocation.

Table 1: Human Development Index: South Asia versus Sub-Saharan Africa

Regions	**1980**	**1990**	**2000**	**2005**	**2010**	**2013**
South Asia	0.382	0.438	0.491	0.533	0.573	0.588
Sub-Saharan Africa	0.382	0.399	0.421	0.452	0.488	0.502

Source: World Development Indicators (2014 Statistics)

The developmental aid aims to reduce poverty in the long-run and supports the economic, environmental, political and social development of poor economies. If the aid had

been disbursed on developmental objectives then the economic problems of the region would have been resolved or reduced to a large extent, but some of the recipients' economic situation has become worse. This point outs the ineffectiveness of aid partially due to the policies of both donors and recipients. The other strong argument is the greater fluctuation which exhibits the varying non-developmental interests and '*shifting politics'* of donors over time. The aid fluctuation has remained quite substantial in case of South Asian economies, which raises questions about the non-development interests of donors and ineffectiveness of aid despite the contemporary economic and social problems of the region.

The top ten poorest countries are Congo, Zimbabwe, Burundi, Liberia, Eritrea, Central African Republic, Niger, Malawi, Madagascar, and Afghanistan. If one considers the top ten aid recipients of US bilateral aid, would only find Afghanistan receiving foreign aid.[11] This is again due to American interests in Afghanistan, their military presence during the War on Terror, and the reconstruction packages whereas the rest of these countries have not been given much preference. Equally, the multilateral agencies also prefer countries not on the basis of poverty but mainly on the political will of influential donors.

This study builds on Reynaud & Vauday (2009), incorporates additional factors to determine the geopolitical potential that influences the flows of aid both from bilateral and multilateral sources during the post-Cold War period for the South Asian economies. The post-Cold war period is further decomposed into inter-war (1991-2000) and the War on Terror (2001-13) eras. Geopolitically motivated aid, and its role in promoting economic well-being, has been given surprisingly little attention in the literature. In particularly, the War on Terror era has been largely ignored by economics-of-aid scholars.

1.3 Geopolitics: A Brief Introduction

"*Geopolitics is the science of conditioning of political processes by the earth. It is based on the broad foundation of geography, especially political geography, as the science of political space organisms and their structure. The essence of regions as comprehended from the geographical point of view provides the framework for geopolitics within which the course of political processes must proceed if they are to succeed in the long-term. Though*

[11] OECD Aid Statistics (2014)

political leadership will occasionally reach beyond this frame, the earth dependency will always eventually exert its determining influence." (Haushofer *et al.*, 1928)

The term geopolitics is defined as '*the study of the effects of geography (human and physical) on international politics and international relations' (*Devetak *et al.*, 2012). Geopolitics represents the association between geographical space, power and strategic decision making. On one side, it entails the interaction of geographic space, natural and man-made resources, and strategic dominance while on other hand, it involves the individual and collective interests developed by state and non-state actors. Further, it also incorporates the demographic elements, people factors, and international relations (Bronshtein, 2011).

This term '*geopolitics*' was developed by a Swedish political scientist, Rudolf Kjellen, in 1901. Later, it was theoretically structured into the international relations discipline by Karl Haushofer, during the rising interstate enmities in Europe, aimed to focus the determination of political power by space (Teschke, 2006). This term captured the concept of 'territorial power struggle to strengthen political control over space' till 1970s (Lacoste, 1993). This phenomenon involves three essential features cross-nationally: a *bio-organic* view of the state, a *Social-Darwinist* basis for international affairs, and the determination of political power from *'spatio-natural'* factors. The primary Anglo-American geopolitical discourse believed in relative significance of land and sea power whereas the German notion focused on inter-state power interests, struggles and enmities in geographical space.

Three different approaches of geopolitics have been discussed in literature namely the classical, critical, and feminist (anti-geopolitics). Classical geopolitics is founded on the principle of political objective from different geographical spaces or regions mainly by the Western countries, which sometimes has been observed as the '*endeavour of elite white males'*[12].Critical geopolitics emerged from post-modernism, aimed at rejecting the theories sheltering the classical foundations of geopolitics and raised concerns and questions the contemporary geopolitical views of dominance and power across the regions. Feminist or anti-geopolitics, derived from 'anti-politics' which accounts for the political role of those who don't like to be politicians, criticises both classical and critical geopolitical discourse. These all different streams of geopolitics are alive and interacting with each other (Flint, 2011). We develop our empirical foundation of geopolitics mainly inspired by the 'classical

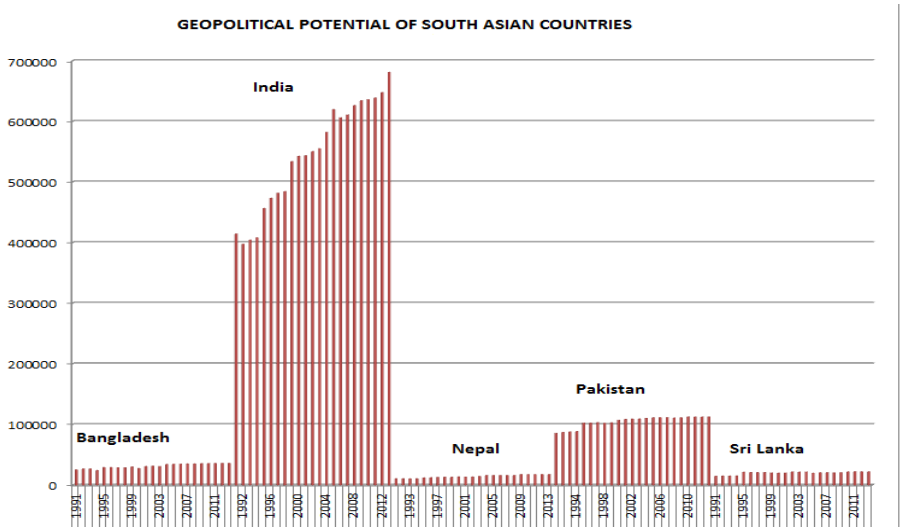
[12] Flint, Colin. (2011). *Introduction to Geopolitics.* First Edition, Routledge Publications, USA and Canada.

geopolitics' by connecting the geographical space, power, and strategic political globalization.

1.4 Geopolitical Potential of South Asian Countries

The following figure 4 shows the *geopolitical potential* derived from factor analysis using factor loadings and respective variance explanation weightages approach for index construction. It is obvious that during our study period (from 1991 to 2013), India has shown a remarkable performance in raising its level of geopolitical potential compared to other countries. While Pakistan and Bangladesh show marginal improvement over time in their geopolitical potential. The detailed discourse can be found in analysis section.

Figure 4: Geopolitical Potential of South Asian Economies

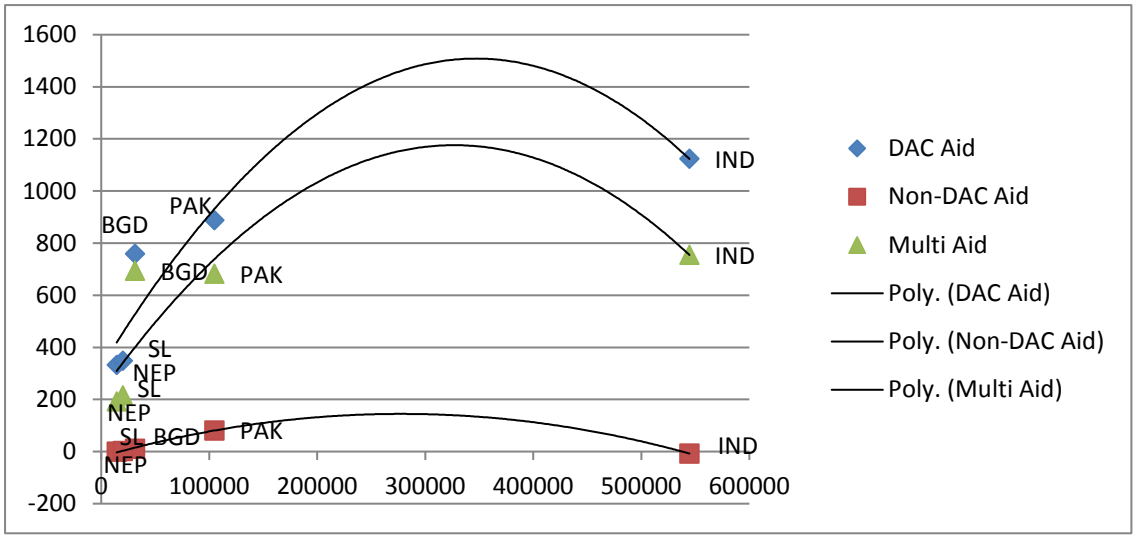


Further, we also plot the averages of geopolitical potential and aid from different donors (as shown below in figure 5). The graph distinguishes India from rest of the South Asian countries due to its regional hegemonic role and highest geopolitical potential. The average plots indicate that India is less likely to receive further aid due to more powerful geopolitical potential relative to (bilateral) donors, blurred face of socio-economic problems, and the recent emerging role as a donor. Particularly, Indian geopolitical potential has reached certain height due to advancement in man-made resources by taking advantage of geography and natural resources, strengthening of military capabilities and political globalization, and its role in the United Nations. Others like Bangladesh and Pakistan still need greater progress to

further raise their geopolitical potential. Currently, they portray mix image of a geopolitical potential and adverse socio-economic conditions that keeps them in a phase of increasing aid.

Figure 5 also distinguishes the relative capacity of donors with respect to height of geopolitical potential of recipients, phasing out the diminishing supplies of aid. Compared to DAC donors, the non-DAC donors have a low capacity to advance aid to South Asian economies. Therefore, we observe a low height of their trend line whereas the DAC donors (jointly) show highest response to geopolitical potential of recipients in terms of height of their aid loop, separating out the increasing and diminishing phases.

Figure 5: Aid from different donors and Geopolitical Potential (Averages)



1.5 Contribution

The earlier studies have established a geopolitical role of foreign aid mainly from the donors' perspective. This study empirically examines two dimensions of geopolitics, both from donors' and recipients' sides. We determine the role of geopolitical potential of South Asian recipients in aid allocation from bilateral sources, both from DAC and Non-DAC members, and multilateral agencies. The study designs an instrument to measure the geopolitical potential of recipients by gathering and systematic rearrangements of a variety of variables used in numerous studies, capturing more aspects pertinent to *geostrategic importance*, *outward defence policy*, *international political alignment*, and role in the *United Nations (voting)*.

This study not only determines the significance of geopolitical potential but also identifies the diminishing effect of geopolitical potential on aid disbursed by DAC donors by observing a polynomial relationship. Further, along with geopolitical potential, we also observe the effect of geopolitical interests of DAC donors. The geopolitical potential has not been observed significant during the WoT whereas the donors' geopolitical interests have been found quite important in influencing the aid during this period. Therefore, we argue that bilateral economic aid from DAC donors has always been influenced by geopolitics in post-Cold War era, either the geopolitical potential of recipients or the geopolitical interests of donors. Overall, the effect of geopolitical potential of recipients has remained higher than geopolitical interests of DAC donors. This study also observes the role of geopolitical interests of main DAC donors in shaping multilateral aid. Notably, the effects of geopolitical potential of South Asian recipients and key DAC donors' on multilateral aid have also been compared and analysed in this study.

Moreover, this study, being first, connects the geostrategic importance, geopolitical potential, military aid, and economic aid. The geostrategic importance measures the power of states depending primarily upon geographic, natural and man-made resources including military capabilities. The military aid if influenced by geopolitics, would further be strengthening the military capabilities. This could raise the geostrategic importance again and eventually the geopolitical potential that may strongly influence the economic aid. Furthermore, the *nuclear-geopolitics* in South Asia has also been addressed with respect to WoT period.

Terrorism, which has just been used in one study[13], is incorporated as a potential control variable to determine the impact of domestic terrorism on aid during the War on Terror. This gauges whether only the vested interests of key donors are important to allocate aid (that is, aid as a response to the threat of terrorism). The earlier panel studies[14] witnessing the overwhelming strategic interests of donors did not pay attention to South Asia. This study explores the South Asian economies considering the inter-War and War on Terror periods after the re-emergence of aid as a '*geopolitical tool'* by strong donors.

[13] Dreher *et al.* (2011)

[14] McKinlay & Little, 1978; Maizels & Nissanke, 1984; Ball & Johnson, 1996; Schraeder *et al.*,1998; Meernik *et al.*, 1988; Alesina & Dollar, 2000; Burnside & Dollar, 2000; McGillivray, 2003; Neumayer, 2003; Berthelemy & Tichit, 2007; Boschini & Olofsgard, 2007; Headey, 2008; Renynaud & Vauday, 2009; Fleck & Kilby, 2010; Dreher *et al.*, 2011.

CHAPTER II

LITERATURE REVIEW

Literature differentiates the donors on the basis of aid objectives into two main groups: donors that primarily following development objectives and others tracking principally non-development objectives. The development aid has had different focuses over time like 'modernization in 1950s and 1960s, basic human needs during 1970s and early 1980s, sustainable development and structural adjustment in 1990s, and human security' since the start of this new century. Empirical investigations of the aid objectivity of different donors provide mixed findings of different schools of thought: one group views that ideology, commercial, political and strategic interests are the primary determinants of aid, and other finds the humanitarian perspective dominant in explaining the foreign aid.

Notwithstanding, many changes over the history of aid, one constant factor has been observed, "*development objectives of aid programs have been distorted by the use of aid for donors' commercial and political objectives*" (Tarp and Hjertholm, 2000). The fundamental critics believe that it implicitly involves the Western control and expansion and denounce it for serving the '*imperialism*' in modern times. Thus, number of studies analysing the aid allocation objectives develop a consensus that non-developmental factors have remained more important in influencing the aid allocations than developmental, though varied over time and among donors.

2.1 Political Economy of Aid

Studies on the political economy of aid reveal that the donor countries try to raise their influence on the international political platforms and achieve long-term political and economic interests by advancing foreign aid (Baldwin, 1966). Many studies conducted on the foreign aid determine that the donor interests weigh more than the recipient needs on the mechanism of aid allocation, particularly in case of bilateral aid (McKinlay and Little, 1978; 1979; Maizles and Nissanke, 1984; Gang and Lehman, 1990; Cohen, 1995).

Foreign aid has been expanded mainly due to the geopolitical, commercial and other interests of donors, not due to humanitarian aspect (Jones et al., 2005; Browne, 2006). Maizels and Nissanke (1984) investigated the American, British, French, German and Japanese aid disbursed during 1960s and 1970s, and found that aid during such period was allocated in economic, political and security interests of donors. The business lobbies, especially the exporters, exert pressure on the government to shape the assistance package in tied form to increase the purchasing power of recipients which further raise the exports to the recipient countries (Tsoutsoplides, 1991; Vaubel, 1991; Morrissey, 1996; Oatley and Yackee, 2000). Berthelemy (2006) found trade and commercial aspects stronger in explaining the foreign aid allocations by approving the link between the major trading partners and aid provisions. Ireland, Nordic region (except Finland) and Switzerland allocated aid mainly on humanitarian or developmental basis while France, Japan and UK advanced aid chiefly on non-development objectives.

Studies examining the commercial motives of aid have found positive relationship between foreign aid and commercial interests with varied level of significance (Cingranelli and Pasquarello, 1985; Lebovic, 1988; McKinlay and Little, 1979; Meernik et al., 1998; Poe, 1992; Travis, 1995). The rise in exports in donor countries strengthen the businesses and increase production which further lead to a rise in economic opportunities which make the voters, business lobbies, bureaucrats and government equally happy.

The importance of external factors involved in designing aid policy has been highlighted in literature. During the Cold War, the United States foreign aid policy excluded the countries with which it had ideological differences in terms of economic and social systems (Poe, 1991; Poe and Meernik, 1995; Travis, 1995, Sogge, 2002). Changes appearing in regimes or in power of political parties lead to changes in the foreign aid policy, affecting the flows of aid, and consequently these fluctuations adversely affect the economic growth of recipients (Bulir and Hamannn, 2003; Bulir and Lane, 2002; Eifert and Gelb; 2005; Lensink and Morrissey, 2000).

Many of the earlier studies have also found the importance of recipients' domestic features related to governance, law and order, population, income, openness, political structure and stability, political rights, civil liberties, internal and external conflict, violence, natural disasters, education and health conditions or human development index, fragile and

failed states to explain the aid allocation (Hess, 1989; Schraeder et al., 1998; Alesina & Dollar, 2000; Alesina and Weder, 2002; Neumayer, 2003; Berthelemy, 2006; Dollar & Levin, 2006; Boschini & Olofsgard, 2007; Mesquita & Smith, 2007; Balla & Reinhardt, 2008; Headey, 2008; Younas, 2008; Clist, 2011; Dreher et al., 2011).

2.2 Aid and Geopolitics

The strategic and geopolitical interests of donors have been highlighted in the literature using a wide range of variables like military aid, allies at war, donor's military presence in recipient, arms transfer from Soviet, Communist border, geographical location, distance from donors, arms sales, military expenditures, military force, mineral and energy resources, nuclear capabilities; language, religion, colonial history, and voting in favour of donors in United Nations General Assembly (Wittkopf, 1973; McKinlay & Little, 1978, 1979; Maizels & Nissanke, 1984; Osterud, 1988; Ball & Johnson, 1996; Meernik et al., 1998; Schraeder et al., 1998; Mussa, 1999; Alesina & Dollar, 2000; Burnside & Dollar, 2000; McGillivray, 2003; Neumayer, 2003a; Berthelemy, 2006; Boschini & Olofsgard, 2007; Mesquita & Smith, 2007; Rose, 2007; Balla & Reinhardt, 2008; Headey, 2008; Reynaud & Vauday, 2009; Fleck & Kilby, 2010; Clist, 2011; Dreher et al., 2011). The wide range of geopolitical variables simultaneously explains the strategic importance of recipients as well as the donors' interests. The colonial aspect of aid allocation has been found diminished in the post-Cold War period.

The literature reached on a consensus that the strategic and geopolitical motives of donors have remained important in explaining aid allocation. Some studies witnessed that these interests have lost their potential since the end of Cold War (Ball & Johnson, 1996; Meernik et al., 1998; Lai, 2003; Berthelemy& Tichit, 2004; Dunning, 2004; Boschini & Olofsgard, 2007) but few found the re-emergence of strategic and geopolitical interests of donors after 9/11 during the War on Terror (Moss et al., 2005; Fleck & Kilby, 2010).

Foreign aid has been greatly used by the United States as a policy instrument to raise its influence and to safeguard its own vested interests and of its allies as well. During the Cold War, the United States disbursed aid to Europe and developing countries to reduce the Soviet expansion and to help its allies (Meernik at al., 1998; Dunning, 2004; Boschini and Olofsgard, 2007). Before the end of the Cold War, the US aid was disbursed to allies and strategically important regimes (Mesquita and Smith, 2009). Later on, by the end of Cold

War, the US restructured its aid policy to counter 'rogue' states and to provide funds for development plans (Fleck and Kilby, 2010; Lai, 2003; Wright and Winters, 2010). The maintenance of internal stability, in political and law and order formats, has remained the significant part of US grand strategy to keep its allies network protected from security threats (Lake, 1999 and 2009). Since 9/11, the US aid policy has moved more towards countering terrorism threats to protect itself and its allies (Mueller, 2006, Ikenberry, 2011). Boutton and Carter (2014) found that alliance network is continued in US foreign policy after 9/11 while combating '*transnational terrorism'*, but the aid policy has placed less weight to the security of its allies than its own.

2.3 Aid Effectiveness: An Overview

On aid effectiveness front, the literature provides three different streams. One views that aid has a significantly positive effect on economic growth of recipients (Lensink and White, 2000; Hansen & Tarp, 2001; Clemens et al., 2004; Asteriou, 2009). The second stream views that aid positively contributes in economic growth conditional upon good economic policies, institutional effectiveness, good governance, colonial history, ideal geographical location, export price shocks and where the civil war just ended (Burnside and Dollar, 2000; Durbarry et al., 1998; Collier and Dehn, 2001; Collier and Hoeffler, 2002; Dalgaard et al., 2004; Roodman, 2004, Rajan and Subramanian, 2008) while the third stream contradicts with the earlier streams, by suggesting the negative effect of aid on economic growth of recipients by raising debt burden on poor economies, increasing the size of public sector leading to poor governance and corruption, and failure of domestic resource mobilization (Mosley, 1980; Dowling & Hiemenz, 1982; Boone, 1996; Radelet, 2006; Rajan & Subramanian, 2008; Arellno et al., 2009).

The growing literature on aid effectiveness also raises concerns about aid fluctuation which may affect the recipient governments' expenditures and ultimately lead to instability of policies (Rodrik, 1990). The macroeconomic structure of recipients due to inconsistent investment plans and fiscal policies has been found to be affected by the fluctuations in foreign aid (Lensink & Morrisey, 2000; Mosley and Suleiman, 2007). Hudson and Mosley (2008) found that both the positive and negative volatilities in aid reduce its impact on economic growth. Positive aid volatility characterizes the sudden rise in aid, reducing its effectiveness, due to constraints on capacity of absorption while the negative volatility

represents the sudden fall in aid which reduces its effectiveness due to delays or termination of government plans and investment programs.

The effectiveness of bilateral and multilateral aid addressed by scholars also provides mixed findings. Ram (2003) found bilateral aid more effective than multilateral aid. Headey (2008) found multilateral more effective during and after the Cold War while the bilateral aid has been found effective only in post-Cold War era. The Cold-War geopolitics and Washington consensus on World Bank lending decisions during 1980s, suggests to analyse the bilateral and multilateral aid allocation and their effectiveness separately in historical perspectives, i,e., Cold War and post-Cold War eras (White, 2002; Headey, 2008).

2.4 Some Important Issues

The important issues highlighted by the recent literature related to contemporary practices of aid allocation are the '*donor darlings'* and '*donor orphans*'. Aid is provided to selected economies of the donors' choice, and not entirely on the demand of the recipients or on humanitarian and developmental purposes. For this reason, the researchers call it as an '*impure public good'* (Bobrow and Boyer, 2005), accrues mixed benefits to donors and recipients. Humanitarian and poverty driven factors have not been given much importance in case of many donors. Further, the bilateral and multilateral aid has remained volatile in many of the developing economies due to which it becomes difficult for the poor countries to achieve their targets of sustainable economic growth. The poor countries do not have an effective voice in aid system though they participate in DAC meetings now, but still they are ineffective. Historically, different major donors have had different disproportional weights of political, economic and strategic interests due to which their focus of development is still '*blurred*' as it has been found subserving the non-developmental objectives of donors. Aid policy nature has been stated, '*baffling*', as different ideas and goals remained dominants at different times for different donors (Morgenthau, 1962).

2.5 Literature Synthesis

The literature has mostly viewed the geopolitical interests of donors through variety of variables but less impetus has been given to geopolitical potential of recipients. Our motivation is to fill this gap in literature. We argue that if the geopolitical interests of donors

have been found significant in influencing aid from donors in some countries or regions, it is due to something on part of recipients as well. Equally, it is the geopolitical potential of recipients that mainly attracts the aid and geopolitical interests of donors may further be attached to lending decisions. Summing up, the significance of either conditions of geopolitics indicates the stronger effect of non-developmental objectives of aid.

A few studies have actually attempted to explore the geopolitical potential of recipients. Taking the geopolitics of foreign aid from either donor or recipients' perspective is rare to observe in literature. Deriving motivation from a scare amount of literature, we organize this study based upon literature findings to develop a range of potential variables that can help to develop a measure of geopolitical potential of recipients. A detail discourse regarding geopolitics, its important implications, and measurement mechanism is given in methodology section.

CHAPTER III

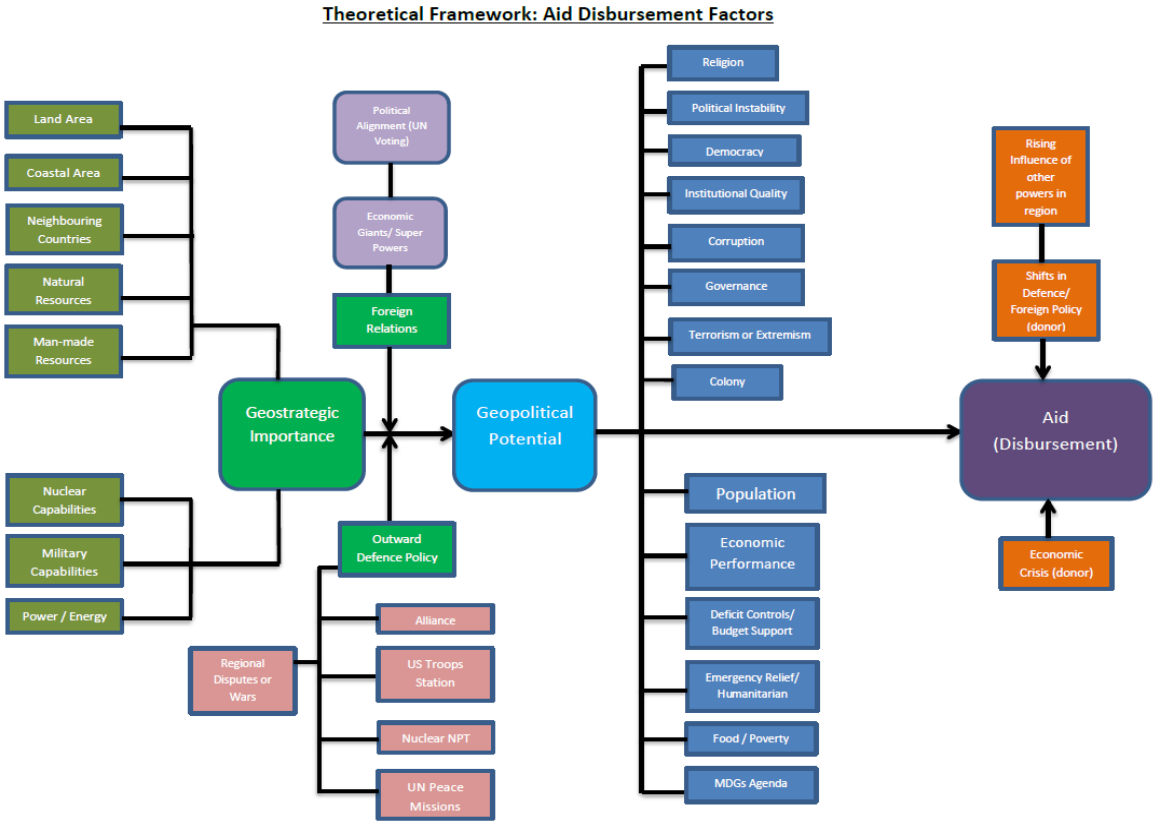
METHODOLOGY

This section covers the conceptual framework of measurement of geopolitical potential, methodological issues, research questions, and their corresponding empirical choices and relevant discussion.

3.1 Theoretical Framework in terms of Schematic Diagram

This study focuses the role of geopolitical potential in aid disbursement. The detailed version of role of geopolitical potential (measured by the interaction of geostrategic importance, outward defence policy, foreign relations and the UN voting decisions) in aid disbursement along with other prime factors outlined in the literature is shown below in a schematic diagram.

Figure 6: Theoretical Framework of Geopolitical Potential and Aid Disbursement



3.2 Methodological Framework

3.2.1 Research Design:

Type of Research:

The mode of research is quantitative in nature, that is, regression analysis is being applied for international panel data analysis.

Time Horizon:

This study mainly focuses on the period after the Cold War that is from 1991 till 2013, the phases of this period being the inter-War (1991-2000) and the War on Terror (2001-13).

Data Collection Sources:

The time series data will be taken from official and valid sources from various publications and reports like Economic Surveys, handbook of statistics of South Asian economies, World Development Indicators databank, Global Development Finance, Economic Intelligence Unit, Polity IV dataset, Freedom House, Central Intelligence Agency (CIA) Fact-book, Stockholm International Peace Research Institute (SIPRI), International Atomic Energy Agency (IAEA), UN Voting Call Data, Global Terrorism database, RAND World Terrorism database, Global Fire Power, State Bank reports, UN reports, US Energy Information Administration, US Green-book, World Nuclear Association, IMF Direction of Trade Statistics, Heritage Foundation, etc.

Countries:

This study considers only five countries of the South Asian region. The countries included in our analysis are: Bangladesh, India, Nepal, Pakistan and Sri Lanka. Though we started with seven countries but missing data of Bhutan and Maldives over time led us to reduce our analysis to five countries only. Studies[15] done on measuring the impact of aid on South Asian economies have also analysed these five countries due to same missing data problems for Bhutan and Maldives.

[15] Asteriou, 2009; Bhavan *et al.*, 2011.

3.3 Research Question: Methodological Frameworks

What is the role of geopolitics in aid disbursement to South Asian economies from both bilateral sources and multilateral bodies with respect to the post-Cold War era?

To explain this question, firstly, we respond to the elementary question of this research hypothesis to measure the geopolitical potential of South Asian economies.

What constitutes the geopolitical potential particularly in context of South Asian economies?

The literature on recipient needs and donor interests has transformed into '*hybrid*' models, encompassing the leading features of both recipients and donors simultaneously. The donors' political, economic, ideological and strategic interests have been found significant in many of the studies especially in the Cold War period. The recent studies have also witnessed the re-emerging strategic interests of donors during the War on Terror (Fleck & Kilby, 2010).

The literature determining the geopolitical potential of recipients used a variety of factors like measures of alliances, donors military presence, military expenditures, arms imports, voting in United Nations General Assembly (UNGA), colonial affinity, geographical locations, bordering a security threat, trade or military relations with Communists, common religion and language, nuclear capabilities, energy and mineral resources, etc. But there is no consensus which of these factors is/are more important and best explain(s) the geopolitical potential of recipients and its likelihood to receive aid from donors.

Geopolitical potential encompasses many features of *geostrategic importance* including the geography, infrastructure, military and nuclear capabilities, mineral and energy resources; *outward defence policy* or links; *political globalization;* and the *UN voting decisions* made by the recipients. Indeed, it is difficult to capture all of these areas related to geopolitical potential of recipients, as Baldwin (1979) stated '*there's no unique variable*'. The intensity

and significance of variables related to geopolitical potential vary across recipients. Therefore, the concerned studies have used a variety of variables to determine the significance of different variables. Due to these problems, an index for geopolitical potential and its likelihood for aid allocation is a challenging task.

The most commonly used variables related to recipients' geopolitical or strategic importance are arms imports, military alliance, military aid, colonial history, and voting in the UNGA (Wittkopf, 1973; McKinlay and Little, 1977; Maizels and Nissanke, 1984; Ball and Johnson, 1996; Meernik *et al.,* 1998; Burnside and Dollar, 2000; Alesina and Dollar, 2000; McGillivray, 2003; Neumayer, 2003; Boschini and Olofsgard, 2007; Balla and Reinhardt, 2008; Fleck and Kilby, 2010; Clist, 2011; Dreher *et al.,* 2011). The military aid indicates the donors' strategic interests but fails to determine the geopolitical importance of recipient in its absence, which means that there's no geopolitical potential of a recipient if it is not given military aid. Hence, it serves mainly the donors geopolitical interests rather recipients potential. Therefore, Boschini and Olofsgard (2007) used this variable with caution, i.e., the military aid received by a recipient in any two of the last five years period. Further, it raises concerns about the reasons for flow of military aid.

The military aid is usually given for some essential purpose, most likely to safeguard the donors' security, and acts like responding to the geostrategic importance of a recipient. In fact, it is an effect, not a cause. Stein *et al.* (1985) explained three main purposes of the US military aid: (a) *direct enhancement of US national security*, (b) *indirect enhancement of US national security*, and (c) *domestic problems*. Firstly, the direct enhancement aims to raise the military power of US allies so they could control the security threats. Secondly, the indirect enhancement of US national security deals with aid given on the explicit or implicit demands of allies, and thirdly; the domestic economic and political interests, which keeps the defence production '*warm*' and lowers the US military bill by reducing the average cost of production. Poe (1991a) determining the sources of US military aid during 1980s, developed the *strategic importance index* of recipients based on equal weight of five binary elements: non-communist country bordering communist country, located in Western hemisphere, with more than 500 US military personnel, supplying '*critical*' minerals to US, and faced an intense threat from leftist(s) before the aid decision. Again, this index seems more important in explaining the Cold War geopolitics especially the US strategic motives rather recipients potential.

Arms imports could be either on demand or on the need of recipients; or on the donors' wish or interests, if a recipient is fighting or having perceived threats from the donor's enemies. All these features ignore the recipients own military and nuclear capabilities, energy and mineral resources, and other key geographical features that might be relevant to determine the geopolitical potential. Similarly, the outward defence policy decisions of a recipient to join the donor's defence alliance network, or providing the land or bases to donors' troops, again ignore many other essential features. The political alignment with main donors at UNGA just captures one segment of geopolitical potential, i.e. foreign policy. Reynaud and Vauday (2009) have used a variety of features of geopolitical variables capturing the military, nuclear, energy and geographical elements to determine the strong correlated factors explaining the geopolitical factors, using the common factor analysis approach. They also used the UNGA voting record to determine the political alignment of recipients with main donor countries, for the concessional and non-concessional multilateral aid, disbursed by the IMF. Since we are just taking a small region of the World, therefore, we address the nuclear-geopolitics separately due to its prime importance, and construct geopolitical-potential index based on common features of South Asian economies.

Recently, Teclean (2010) has made an effort to determine the *power-states, pivotal-states* and *peripheral-states* based upon their geopolitical potential ranging from 0 to 100. He measured the geopolitical potential by considering six main elements: *geostrategic position* (number of seas, borders, and strategic routes), *size of the territory, demographic potential* (population and its growth rate), an *economic potential* (GDP), *organizational capacity* (political stability), and *military budget*. He assigned 20 percentage weightage to geostrategic position, demographic and economic potential, 15 per cent to organizational capacity and military budget, and 10 per cent to size of territory based upon his own intuition. The countries having geopolitical potential score above 40 are considered as power-states (US, China and Russia only), and those ranging from 20 to 40 are pivotal states while below 20 are peripheral states. Our study considers the potential variables of Teclean (2010), Reynaud and Vauday (2009), Poe (1991a), and other key variables from the relevant literature to determine the geopolitical potential systematically. However, some of the fundamental features as highlighted by the Teclean (2010), i.e., political stability, population, economic potential, etc., have been taken separately in models to determine their individual effects, based upon their respective significance in literature. Secondly, assigning the weights in empirical settings is important which should not simply be based on intuition. Thirdly, this study is targeting the recipients

from the developing region rather looking at all countries including the developed donor nations.

The theoretical framework shows a variety of factors explaining geopolitical potential. Hence, to filter out the important variables jointly explaining the geopolitical potential, this study applies the same approach of Reynaud and Vauday (2009). We incorporate a wider range of variables determining the geostrategic importance (based upon internal strengthening factors, covering the mineral and energy resources, infrastructure, military capabilities, and geographical features), and joins it with outward defence policy, political globalization and UN voting of countries, using a factor analysis.

Factor analysis, also known as '*spectral decomposition'*, is a method to reduce the number of data, that is, the original matrix to a smaller subset of data, capturing most of the information based upon *eigen* values of the covariance matrix. Mathematically, following the Reynaud and Vauday (2009), the factor analysis with observation (x_i) states that:

$$X_i = \sum_{r-1}^{k} l_{ir} f_r + e_i \ (i = 1,2, \dots, p) \quad (1)$$

where f_r is the common r-th vector, k is specified, and e_i is a residual that exhibits the variation sources affecting x_i. The general factor will be explaining the correlation matrix, based upon the sets of correlations of the observed variables. The product of any two of these correlations will be equivalent to the correlation between the two observed variables. We apply the 'regression' method to derive the factor scores for this geo-strategic potential factor (gsf). The later form is here under:

$$gp = \Lambda(\Lambda.\ \Lambda' + \Sigma_u)^{-1}\ X' \ = \ (I + \Lambda'\ \Sigma_u^{-1/2}\ \Lambda)^{-1}\ \Lambda'.\ X' \quad (2)$$

where Λ represents factor matrix, $\Xi = F.\ \Lambda'$ gives Λ', the left side shows the 'true' regressor values in a matrix. The equation $X = \Xi + U$, gives the matrix for observations X, where U embodies the error matrix, like for e_i in equation (1). The product $\Lambda.\ \Lambda'$ denotes the cross-factor matrix of Λ with each other. The equation $\Sigma_u = \text{diag}(\sigma^2_{u1,}\ \sigma^2_{u2,\dots,}\ \sigma^2_{up})$ determines the covariance matrix of the unique factors.

The choice for the number of variables is not limited like regression, i.e., the greater the number of variables, the greater will be the common underlying factors, explaining the

maximum share of the variance. The Akaike Information Criteria (AIC) and Bayesian Information Criteria (BIC) can be used to select the number of common underlying factors along with maximum likelihood tests. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, which compares the magnitude of the observed correlation coefficients to the magnitude of partial correlation coefficients, is used to measure the commonalities for factor analysis. The strongly correlated factors jointly better explaining the geopolitical potential essentially is based upon common features of the South Asian countries. There are couple of geopolitical features that shows the unique characteristics of South Asian economies like civil nuclear capabilities, oil and gas pipelines, critical natural resources (uranium, copper, iron, gold, etc.). Nevertheless, we do not take such unique characteristics into account in factor analysis since our focus is more on uniform features, playing its composite role in affecting aid decisions in South Asia.

The literature on geopolitics features population, economic condition (in terms of income) as well as the nuclear defence capabilities as the significant factors to determine the geopolitical potential. However, the work on aid allocation also highlights the essential roles of these factors, and suggests biases that aid per capita is being overlooked by donors.[16] Therefore, we incorporate these factors in aid allocation equation separately. One important reason to take them separately is that we could differentiate the interests of donors from the recipients' needs depending upon the economic conditions of the recipients. Likewise, greater population is also considered distinctively because some anomalies have been found in the literature with respect to population size.

The following table provides the list of variables used to measure geopolitical potential:

Table 2: Variables measuring the Geopolitical Potential (with Unit and Sources)

Variables	**Unit**	**Sources**
Total Petroleum & Other Liquid Production	billion barrels/ day	US EIA/ UK Min. Stats
Coal Production	1000 ST	UK Mineral Statistics
Electricity Gross Production	kilowatt hours, million	US EIA, UN Energy Stats
Railroads length	km	CIA World Factbook,

[16] Dowling and Hiemenz, 1985; McGillivray, 1989; Trumbull and Wall, 1994

		WDI
Roadways length	km	CIA World Factbook
Area	km^2	CIA World Factbook, WDI
Number of borders	Unit	CIA World Factbook
Length of coastlines	km	CIA World Factbook
Number of Airports	number	CIA World Factbook
Number of Seaports	number	CIA World Factbook
Military Expenditures	% of GDP	WDI, SIPRI
Armed Forces Total	Number	WDI
US Troops (stationed)	Number of US military troops present	Heritage Foundation, Vetfriends
Non-Proliferation Treaty (NPT) dummy	(1: signatory, 0: otherwise)	IAEA
UN Peace Missions (Forces Contribution)	Average number of soldiers per year	UN Peace Keeping Stats
Political Globalization	Index (1-100)	KOF Index of Globalization
UN General Assembly Important Voting	(% votes matches with US)	US State Deptt. Reports on UN Voting Practices
UN General Assembly Overall Voting	(% votes matches with US)	US State Deptt. Reports on UN Voting Practices
UN Security Council Membership dummy	(1: Member, 0: otherwise)	UNSC Membership stats

Some of the variables (in Table 2) have been used by Reynaud and Vauday (2009) but our study incorporates more variables found present in most of South Asian countries and exclude those which appear unique (or absent in most of the countries like oil and gas reserves, pipelines, civil nuclear technology, uranium, copper, iron and gold reserves, etc.) to develop a measure a geopolitical potential on similar grounds. We also use some features of Poe's (1991a) strategic importance index after carefully modifying with respect to the post-Cold war scenario.

Once the important factors explaining geopolitical potential are derived from principal component analysis, we can use the derived factors to develop a measure of geopolitical potential based upon three different methods as explained by a literature.

Firstly, factor score coefficients or component scores on each explained factor are estimated using regression method. Then, we develop a Non-Standardized Index (NSI) based upon the proportion of explanation of each particular factor in overall explained variance by all factors after rotation. The rotation with a *varimax* approach is applied to reduce the size of sub-indicators with high loading on same factor. The purpose of this change or rotation in factorial axes is to determine simpler structure of the factors (Nardo *et al.,* 2005). The non-standardized index has both positive and negative values but can be standardized by following method as suggested by Krishnan (2010). The similar approach has been used in earlier studies (Sekhar *et al.,* 1991; Anotny & Rao, 2007).

$$\text{Standardized Geopolitical Potential Index} = \frac{(\text{NSI value of each case} - \text{Minimum NSI})}{(\text{Maximum NSI} - \text{Minimum NSI})} \times 100$$

The second approach is to develop an index initially based upon the weights from post rotation factor loadings matrix as suggested by Nardo *et al.* (2005). Firstly, we assign weight to each variable of the factor by squaring its factor loadings or score divided by its total factor loadings after rotation. Then we combine the normalized factor loadings of all variables in each factor to develop composites. Then these derived factors (or composites) are assigned weights according to their proportion in explained variance in dataset.

Thirdly, once the results are derived from factor analysis, we use the original variables forming factors and aggregate them to form composites by assigning equal weights. Then each composite is assigned weight equal to the proportion of its explained variance after rotation as suggested by Pomeroy *et al.,* (1997) and Abeyasekara (2005).

We use all three methodologies to construct an index of geopolitical potential: Standardized geopolitical potential, weighted factor loading method, and factor weighted original data

method as discussed earlier to strengthen our analysis. Further, their logistic forms will be taken to measure the change in empirical analysis. The variables used in further estimation of models related to bilateral economic aid both from DAC and Non-DAC donors as well as from multilateral sources are given below in table 3 with units and sources:

Table 3: Variables Description (unit and sources)-Aid Models

#	Variables	Unit	Source
1	Current Account Balance	% of GDP	IMF Government Finance Statistics (GFS)
2	Current Account Dummy	Dummy (1 for positive balance, 0 otherwise)	Derived from IMF GFS
3	Democracy (institutionalized)	Scale: 0 to 10 (0 autocracy, 10 strong democratic)	Polity IV dataset
4	GDP growth	percentage	World Development Indicators (WDI)
5	HCTB Deaths	numbers	Center for Systemic Peace
6	HCTB Incidents per year	numbers	Center for Systemic Peace
7	HF Corruption	Freedom from Corruption Scale: 0 to 100 (0 most corrupt)	The Heritage Foundation
8	DAC Aid	Million US$	OECD Statistics
9	GNP per capita	Current US$	World Development Indicators (WDI)
10	Geopolitical Potential	Index (derived from principal component analysis)	Constructed using PCA
11	NON DAC AID	Million US$	OECD Statistics
12	SHARE OF DONORS	Donors share in Recipient's Imports (percentage)	IMF Direction of Trade Statistics (DOTS)
13	Openness	Trade (% of GDP)	World Development Indicators (WDI)
14	Non DAC Aid	Million US$	OECD Statistics
15	Nuclear Weapon Stockpile	numbers	Kristensen & Norris (2013)
16	Nuclear Warheads	Dummy (1 for Nuclear Defence Capabilities, 0 otherwise)	Information derived from SIPRI
17	Polity2	Scale: -10 (strong autocratic) to +10 (strong democratic)	Polity IV dataset
18	Population	numbers	World Development Indicators (WDI)
19	US Ally	Dummy (1 for allies, 0 otherwise)	The Heritage Foundation
20	US Military Aid	Constant US$ 2012	US Overseas Loans and Grants (Greenbook)
21	WT	Dummy (1 for War on Terror period, 0 otherwise)	US State Department

Does the military assistance respond to geopolitical potential? Is there any relationship between military and economic aid?

This study hypothesizes that military assistance induces economic aid. As Poe (1991a) determined that military aid responds to the strategic importance of countries based on key variables, therefore, we assume that the geopolitical potential may attract military assistance at first which may further trigger economic aid especially from the DAC donors.

Cingranelli and Pasquarello (1985), Poe (1991a), Poe and Meernik (1995) have also used other key variables like human rights abuse, ideology and communist bordering to determine their role in military aid disbursement. Since, we are more interested in the *inter-War* and *War-on-Terror* time periods rather than the Cold War, the communist ideology, which remained significant during the Cold War, lost its importance in the post-Cold War environment. Correspondingly, the communist bordering variable has not been considered for this study.

In the military assistance model, we also account nuclear capabilities, political stability, and democracy along with geopolitical potential to determine their effect on the disbursement of the US military assistance. Further, to study the donors' geopolitical interests separately, we develop a dummy variable of the US alliance.

$$LOG\,(\text{Mil\_Aid})_{it} = \alpha_0 + \alpha_1 LOG(GP)_{it} + \alpha_2 D_1(\text{US\_Ally})_{it} + \alpha_3 \text{Nuclear\_Weapons\_Stockpiles}_{it}$$

$$+ \alpha_4 \text{Democ}_{it} + \alpha_5 \text{Political\_Stability} + \alpha_6 D_2(\text{WT})_t + e_{it} \qquad (3)$$

In equation 3, the US military aid has been taken as the dependent variable. We apply pooled OLS and fixed effect estimation techniques. The pooled OLS models do not allow heterogeneity. They also assume the constant coefficients across time and cross-sections. Therefore, we apply fixed effect technique too for heterogeneity purpose. The fixed effect models provide time-in-variant intercepts for each individual (country) that is not possible in pooled OLS models. We also expect the geopolitical potential of recipients to be non-linear with military aid since military aid can reduce after a recipient reaches self-sufficient or (desired) greater level of military power in OLS estimations. We will also be adding few other interactive variables to strengthen our analysis with respect to War on Terror, as shown below in equation (3.1).

$$LOG(\text{Mil\_Aid})_{it} = \alpha_0 + \alpha_1 LOG(GP)_{it} + \alpha_2 LOG(GP)^2_{it} + \alpha_3 D_1(\text{US\_Ally})_{it} + \alpha_4 \text{Nuclear\_Weapons\_Stockpiles}_{it} + \alpha_5 \text{Democ}_{it} + \alpha_6 \text{Political\_Stability} + \alpha_7 D_2(WT)_t + \alpha_8 LOG(GP)_{it} * D_2(WT)_t + \alpha_9 LOG(GP)_{it} * \text{Nuclear\_Weapons\_Stockpiles}_{it} + e_{it} \quad (3.1)$$

Since some countries have not been given military aid in some time period, this study takes advantage of applications of the limited dependent variable models. The literature on aid highlights two steps of aid disbursement: *gate-keeping* and *stage-setting*. The gate keeping refers to the selection of countries and stage-setting describes the aid allocation. This approach has been used in form of Probit and later OLS, Heckman's two-part models, and Tobit one-step procedure. Therefore, this study takes Tobit (one-step) into account for impact on selection and allocation of US military aid simultaneously. A linear latent function of equation (3) is given by:

$$y_{it}^* = \max(0, \beta X_{it} + u_{it}) \quad (4)$$

with $u_{it} - N(0, \sigma^2)$

and $y_{it} = y_{it}^* \quad if\ y_{it}^* > 0$

$y_{it} = 0 \quad$ otherwise

where y_{it}^* denotes the latent potential amount of military aid to recipients i over time t, X_i shows the vector of explanatory variables like geopolitical potential, the US alliance, nuclear stocks, and others (as mentioned in equation 3), β represents the vector of associated parameters, u_i is an error term which is assumed to be independent of X_i and *iid* across individuals.

An important feature of Tobit estimations is that it can be classified as a combination of both OLS and probability models. Therefore, applying Tobit will have joint features in explaining OLS and probability effects. The coefficients should be read with caution as they contain both features. Firstly, the obtained coefficients will not be observed for marginal impact on the regressand (dependent variable), i.e., a unit change in a regressor (independent variable) will affect the mean value of a regressand. Secondly, it would also be affecting the probability of the regressand. The probability also depends upon the range of variables in the model and their corresponding coefficients. However, their effect on mean value of regressand will be smaller because it is later interacted with a probability that ranges between

0 and 1. For a simple analysis, we can observe its initial effect on the mean value of regressand. However, for a simple analysis, one can directly interpret the slope coefficient as the marginal impact on the mean value of latent variable *(y_{it}*),* instead of observed regressand.

Further, we explore a relationship between military aid and economic aid disbursed by DAC members. Since we are considering US military assistance, therefore, we design to explore its relationship with bilateral aid only from DAC donors rather non-DAC. We also take advantage of the vector autoregressive (VAR) estimations followed by Granger Causality test.

At first, this study checks the stationarity status of the two series, if they are found stationary then we can simply apply VAR approach. Alternatively, the panel cointegration technique can be applied to investigate the relationship. The following equation shows the direction of military aid causing the total bilateral economic aid from DAC donors only to South Asian recipients using Granger-causality approach.

$$DACAID_{it} = \beta_0 + \beta_1 DACAID_{i,t-1} + \ldots + \beta_p DACID_{i,t-p} + \alpha_1 MILAID_{i,t-1} + \ldots + \alpha_p MILAID_{i,t-p} + \varepsilon_{it} \quad (5)$$

We test the null hypothesis that coefficients of lagged military aid (αs) in equation 3 are jointly equal to zero. Using the F-test, if we reject this null hypothesis then we can say that the military aid Granger causes total bilateral economic aid. The opposite direction is being checked by the following equation:

$$MILAID_{it} = \beta_0 + \beta_1 MILAID_{i,t-1} + \ldots + \beta_p MILAID_{i,t-p} + \alpha_1 DACAID_{i,t-1} + \ldots + \alpha_p TDACAID_{i,t-p} + \varepsilon_{it} \quad (6)$$

The coefficients of lagged economic aid (αs) in equation 4 are checked for zero equivalence jointly for null hypothesis. The significance or insignificance of F-test for both equations 5 and 6 can help us to conclude about the direction.

Now, we move on to our first main hypothesis.

What is the role of geopolitical potential in aid disbursement to South Asian economies both for bilateral and multilateral bodies with respect to the post-Cold War period?

3.4 Empirical Models

The earlier studies on strategic aspects of aid allocation used separate models both for the donor interests and recipient needs (Maizels and Nissanke, 1984). The later generation started using *hybrid* models to avoid the selection bias problems (McGillivray, 2003; Berthelemy, 2006). The aid-allocation models were strengthened by Cingranelli and Pasqurello (1985), when they designed the aid allocation in two-stage process, i.e., *gate-keeping* and *stage-setting*. The gate-keeping refers to '*aid-selection*', i.e., which countries to be given aid, while stage-setting refers to '*aid-allocation'*, i.e., how much aid to be given to each recipient. This approach has been used in many studies of aid allocation (Meernik *et al.,* 1998; Neumayer, 2003; Mesquita and Smith, 2007; Balla and Reinhardt, 2008; Clist, 2011; Dreher *et al.,* 2011).

Since this study concentrates on a small region, comprising over few countries, therefore, pooled ordinary least squares (OLS) is being applied as economic aid has been given to the most of the South Asian countries without any break. The absence of zero economic aid indicates to avoid the conventional two-stage process of aid selection and allocation. A number of panel studies applying the two-stage process, have used the Heckman's two part model, Probit and later OLS, and one-step Tobit methods (McGillivray, 2003; Neumayer, 2003; Berthelemy and Ticht, 2004; Berthelemy, 2006; Boschini and Olofsgard, 2007; Mesquita and Smith, 2007; Balla and Reinhardt, 2008; Fleck and Kilby, 2010; Clist, 2011; Dreher *et al.,* 2011).

Earlier studies generally studied the overall aid disbursed by all sources. But the recent studies have witnessed distinguishing behaviour of different groups of donors and varying significance of the variables. Therefore, we design our study by observing the behaviour of different donors like Development Assistance Committee (DAC) members of Organization of Economic Cooperation and Development (OECD) and Non-DAC donors for bilateral aid, and multilateral agencies separately.

Terrorism has not been accounted in most of earlier studies. We are using domestic terrorism in our applied models in form of high casualty terrorists' bombings. This variable helps us to observe the behaviour of donors towards domestic bombings and terrorists attacks before and during the War on Terror. Since the study period involves the War on Terror, it would be interesting to consider whether the domestic terrorism in South Asian countries influences the

total aid or is it just the War on Terror that influences aid due to perceived threats of terrorism to the main donors, without considering the local features of terrorism.

3.4.1 Bilateral Aid from DAC donors

The pooled OLS method is applied after checking the stationary status of our concerned variables (see Appendix on page 112). In case of non-stationarity, relevant techniques like error correction methods can be applied. Since most of our variables are found stationary, therefore, we can apply the pooled ordinary least squares method initially to determine the bilateral economic aid from DAC donors. The pooled ordinary least squares is based upon commonalities among cross-sections, and do not allow heterogeneity in estimation mechanism. All the individuals (countries) share common intercept.

Further, we also use the fixed effect techniques to consider the heterogeneity in our cross-sections. This method carrying heterogeneity features, allows us to have a separate intercept for each country. The heterogeneous features (subject specific) are subsumed in intercepts (Gujrati, 2009). In panel data, fixed effect estimations take full account of the features (like geography, country size, natural endowments) that are 'time-invariant' (Asteriou and Hall, 2011). Hence, both the techniques have been applied for bilateral aid disbursed by DAC donors.

The hybrid model contains both the elements of recipient needs and interests of DAC donors in the following equation:

DAC Economic Aid = f (income (per capita), economic growth, imports from donors, trade openness, population, democracy, corruption, political stability, current account balance dummy, geopolitical potential, terrorism (domestic), multilateral aid, War on Terror dummy, bilateral aid from non-DAC sources)

It would be interesting to determine whether bilateral aid from DAC depends positively or negatively upon the non-DAC aid and vice versa. The econometric equation would be:

$$LOG(\text{DAID})_{it} = \beta_0 + \beta_1 LOG(\text{GNP})_{it} + \beta_2 LOG(\text{Growth})_{it} + \beta_3 LOG(\text{IMPD})_{it} + \beta_4 LOG(\text{Open})_{it} + \beta_5 \text{Pop}_{it} + \beta_6 \text{Demo}_{it} + \beta_7 \text{Corrup}_{it} + \beta_8 POL_{it} + \beta_9 D_3(\text{CAB})_{it} + \beta_{10} LOG(\text{GP})_{it} + \beta_{11} \text{Terror}_{it} + \beta_{12} LOG(\text{MAID})_{it} + \beta_{13} D_2(\text{WT})_t + \beta_{14} \text{NDAID}_{it} + \varepsilon_{it} \quad (7)$$

Here, we again expect the geopolitical potential of South Asian recipients to be quadratic in relationship with bilateral aid disbursed by DAC donors in OLS estimation method (see equation 7.1). If aid is influenced by geopolitical potential, then DAC donors, pushed by their electoral system and (propagated) development agenda of aid disbursement program, would tend to reduce aid to recipients making greater progress to raise their geopolitical potential. In Fixed Effects estimation method, we expect it to be linear since we assume all heterogeneous (time-invariant) characteristics of recipients subsumed in intercept. Since, the geopolitical potential is based on combination of time variant and invariant features, it could also be negative due to greater value of India in the region relative to other countries, which can raise the mean value in panel dataset. It is expected that the (time-variant) population will be non-linear (or quadratic) in relationship with DAC aid in fixed effects estimations. We also determine the geopolitical interests of DAC donors by incorporating a variable of the US alliance in equation (7) during the War on Terror period. Some of the main DAC donors are also in alliance with US under NATO, therefore, it is an important feature capturing the vested interests of donors if a recipient joins the main DAC donors in defence alliance during the War on Terror. We incorporate a substantial range of interactive variables in our models to further strengthen our analysis of aid disbursement with respect to War on Terror, as show below in equation (7.1).

$$LOG(\text{DAID})_{it} = \beta_0 + \beta_1 LOG(\text{GNP})_{it} + \beta_2 LOG(\text{Growth})_{it} + \beta_3 LOG(\text{IMPD})_{it} + \beta_4 LOG(\text{Open})_{it} + \beta_5 \text{Pop}_{it} + \beta_6 \text{Demo}_{it} + \beta_7 \text{Corrup}_{it} + \beta_8 POL_{it} + \beta_9 D_3(\text{CAB})_{it} + \beta_{10} LOG(\text{GP})_{it} + \beta_{11} LOG(\text{GP})^2_{it} + \beta_{12} \text{Terror}_{it} + \beta_{13} LOG(\text{MAID})_{it} + \beta_{14} D_2(\text{WT})_t + \beta_{15} \text{NDAID}_{it} + \beta_{16} LOG(\text{GP})_{it} * D_1(\text{US\_Ally})_{it} * D_2(\text{WT})_t * D_4(\text{Nuclear\_Warheads})_{it} + \beta_{17} D_1(\text{US\_Ally})_{it} * D_2(\text{WT})_t * D_4(\text{Nuclear\_Warheads})_{it} + \beta_{18} \text{Terror}_{it} * D_2(\text{WT})_t + \varepsilon_{it} \quad (7.1)$$

Further, status of nuclear states and their production capabilities is designed to be determined in the DAC economic aid models since nuclear capabilities are considered as an important source of geopolitical potential but we intend to study their effect separately. Both India and Pakistan have nuclear weapons and their scale of production is growing over time, therefore, it is quite interesting to study this effect in aid disbursement. We use a range of variables and their interactive forms to well-understand their relationship with aid. Their individual and interactive significances and the differences are also analysed in testing multiples equations for each model.

3.4.2 Bilateral Aid from Non-DAC donors

For non-DAC aid models, we apply the pooled OLS models initially based upon their stationarity status. Further, we estimate the fixed effect models to determine the non-DAC aid, allowing heterogeneity in our cross-sections but time-in-variant.

An important feature is found in data for the Non-DAC aid disbursed to South Asian countries. For some countries in some years, it has been observed negative. The negative sign indicates that fresh flows of aid disbursed by Non-DAC donors are lesser than the payments of existing loans provided by them. Therefore, along with OLS, we can move towards the combination of OLS and probability models, the Tobit estimations. In Tobit, we design to apply censored (normal) method which will be offsetting all negative values to zero and then use the censored data for estimations. Tobit procedure has been explained earlier in the military aid section of methodology.

For the non-DAC aid to South Asian Countries, we apply the same mode like DAC aid with few changes. We replace the DAC aid as dependent to an independent, and non-DAC aid as dependent variable. Similarly, most of the South Asian countries have their imports mainly from DAC donors; therefore, we are not incorporating the share of non-DAC donors in the imports of South Asian countries due to their small size.

Non-DAC Economic Aid = f (income (per capita), economic growth, trade openness, population, democracy, corruption, political stability, current account balance, geopolitical potential, terrorism (domestic), multilateral aid, War on Terror dummy, bilateral aid from DAC sources, geopolitical potential of nuclear capable states during the War on Terror, terrorism in recipients during the War on Terror)

The econometric equation would be:

$$LOG(NDAID)_{it} = \beta_0 + \beta_1 LOG(\text{GNP})_{it} + \beta_2 LOG(\text{Growth})_{it} + \beta_3 LOG(\text{Open})_{it} + \beta_4 \text{Pop}_{it} + \beta_5 \text{Demo}_{it} + \beta_6 \text{Corrup}_{it} + \beta_7 POL_{it} + \beta_8 D_3(\text{CAB})_{it} + \beta_9 LOG(\text{GP})_{it} + \beta_{10} \text{Terror}_{it} + \beta_{11} LOG(\text{MAID})_{it} + \beta_{12} D_2(\text{WT})_t + \beta_{13} LOG(\text{DAID})_{it} + \beta_{14} LOG(\text{GP})_{it} * D_2(\text{WT})_t * D_4(\text{Nuclear\_Warheads})_{it} + \beta_{14} \text{Terror}_{it} * D_2(\text{WT})_t + \varepsilon_{it} \quad (8)$$

Like DAC aid model, we incorporate the nuclear capabilities of some of the South Asian countries due to its vital importance along with other interactive combinations of regressors.

A substantial range of variables is taken to analyse their individual and interactive significance of relationships to strengthen our analysis of aid disbursement of non-DAC donors with respect to War on Terror.

3.4.3 Multilateral Aid

Similarly, pooled ordinary least square method is being applied initially to determine the behaviour of multilateral aid with respect to geopolitical potential of South Asian recipients. Later, we also use the fixed effect estimation approach by allowing heterogeneity in our cross-sections.

The multilateral aid from all sources to the South Asian economies are determined with same variables except imports from donors, while aid from both DAC and non-DAC bilateral sources are introduced as explanatory variables in the following equation (10).

Multilateral Aid (per capita) = f (income (per capita), economic growth, trade openness, population, democracy, corruption, political stability, current account balance, geopolitical potential, terrorism (domestic), War on Terror dummy, bilateral aid from DAC sources, bilateral aid from Non-DAC donors, geopolitical potential of nuclear capable states during the War on Terror, terrorism in recipients during the War on Terror, terrorism in US ally during the War on Terror).

The econometric equation would be:

$$LOG(MAID)_{it} = \beta_0 + \beta_1 LOG(\text{GNP})_{it} + \beta_2 LOG(\text{Growth})_{it} + \beta_3 LOG(\text{Open})_{it} + \beta_4 \text{Pop}_{it} + \beta_5 \text{Demo}_{it} + \beta_6 \text{Corrup}_{it} + \beta_7 POL_{it} + \beta_8 D_3(\text{CAB})_{it} + \beta_9 LOG(\text{GP})_{it} + \beta_{10} \text{Terror}_{it} + \beta_{11} D_2(\text{WT})_t + \beta 12 LOG(\text{DAID})_{it} + \beta_{13} LOG(\text{GP})_{it} * \text{Nuclear\_Weapons\_Stockpiles}_{it} * D_2(\text{WT})_t + \beta_{14} \text{Terror}_{it} * D_2(\text{WT})_t + \beta_{14} D_1(\text{US\_Ally})_{it} * \text{Terror}_{it} * D_2(\text{WT})_t \quad \varepsilon_{it} \quad (9)$$

Additionally, different models are developed by incorporating a diverse range and forms of variables to strengthen our analysis of multilateral aid during the War on Terror. To check the robustness, the diagnostic tests for residuals' normality, heterogeneity, autocorrelation and other key assumptions of classical linear regression are also estimated to validate our findings

both on unbiased and efficiency foundations. The results of these diagnostic tests are given in Appendix section.

CHAPTER IV

RESULTS

4.1 A Factor Analysis: Measurement and Construction of Geopolitical Potential Index

Following Reynaud and Vauday (2009), we extended the range of variables for factor analysis based on common explanatory variables found in most cases (at least four) in five South Asian countries. Since, our focus is mainly on common explanatory power of all the variables determining geopolitical potential, therefore, we could not use unique factors that were found absent in most out of five countries. Some of the South Asian economies have some unique features explaining geopolitical potential like production of some critical elements, i.e., gold (India only), uranium, copper, etc., are found only in India and Pakistan, and channelizing the natural resources (mainly oil and gas) through pipelines. Similarly, nuclear energy and nuclear weapons are only produced by India and Pakistan but the nuclear potential is much important, therefore, we introduced the nuclear potential in our final models based upon their unique nature rather to derive factors through Principal Component Analysis (PCA), focusing the common features. Using the Principal Component Analysis as the extraction method with Varimax rotation, we came across four main factors determining geopolitical potential. These four factors jointly explain 88.25 percent variance (see Table 4).

Table 4: Total Variance Explained (Principal Component Analysis)

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.898	62.623	62.623	11.898	62.623	62.623	10.424	54.862	54.862
2	2.315	12.186	74.808	2.315	12.186	74.808	3.032	15.96	70.822
3	1.496	7.875	82.683	1.496	7.875	82.683	2.082	10.959	81.781
4	1.057	5.564	88.247	1.057	5.564	88.247	1.228	6.466	88.247
5	0.819	4.31	92.557						
6	0.623	3.281	95.837						
7	0.284	1.497	97.334						
8	0.163	0.859	98.193						
9	0.123	0.646	98.839						
10	0.099	0.523	99.362						
11	0.066	0.348	99.71						
12	0.027	0.143	99.854						
13	0.014	0.076	99.929						
14	0.007	0.037	99.966						
15	0.004	0.022	99.989						
16	0.001	0.007	99.996						
17	0.001	0.003	99.999						
18	0	0.001	100						
19	2.01E-05	0	100						

Extraction Method: Principal Component Analysis.

The first factor consists of potential of land with respect to natural resources, geographical features, infrastructure, and armed forces, explains most of the variance around 55 percent. The second factor consists of military expenditures, presence of US troops, and nuclear non-proliferation treaty (NPT) signatory, describes 16 percent variance while the third factor comprises of participation of a recipients' troops in UN peace missions and political globalization, explains 11 percent variance. Forth factor which truly depicts the recipients' participation in UN overall and important voting registers and membership of UN Security Council (UNSC), explicates more than 6 percent variance. The PCA results indicate that countries' natural and man-made resources and military resources account much in explaining the geopolitical potential than political globalization and participation at UN. The weights were assigned to each factor according to their respective *eigen* values and loadings' explanatory power of variance.

Table 5: Rotated Component Matrix using PCA

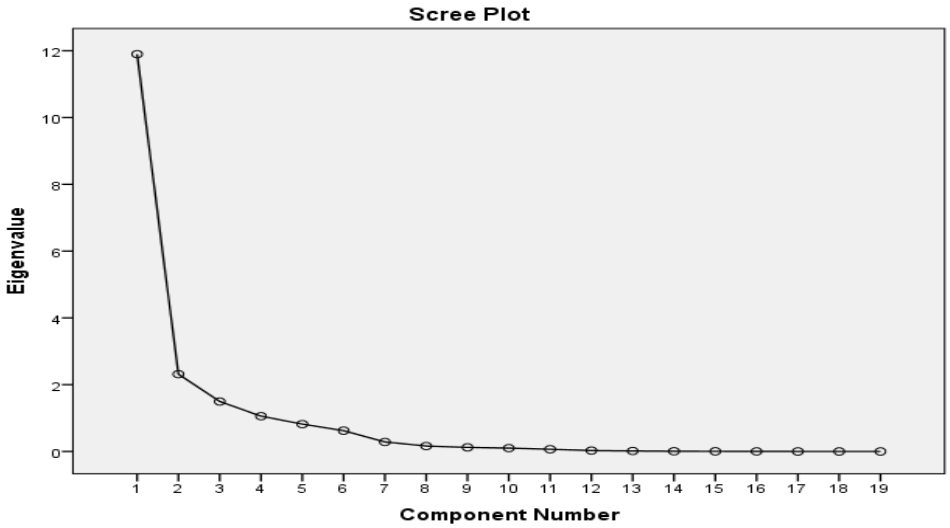
Rotated Component Matrix[a]				
	Component			
	1	2	3	4
Total Petroleum and Other Liquid Production (1000bbl/d)	0.988	0.105	0.082	-0.024
Roadways total (kms)	0.980	0.048	0.131	-0.021
Railroads (kms)	0.978	0.162	0.044	-0.038
Coal Production (1000 ST)	0.976	0.017	0.130	0.006
Length of Coastal line (kms)	0.967	0.153	0.018	-0.088
Area (sq km)	0.957	0.250	0.062	-0.031
Electricity Gross Production (kilowatt hours, million)	0.953	0.074	0.203	0.008
No. of airports	0.920	0.332	0.104	-0.021
Armed Forces, total	0.916	0.289	0.185	-0.075
No. of seaports	0.885	0.178	0.076	-0.076
Number of borders	0.780	0.446	0.193	0.091
Military Expenditure (% of GDP)	-0.017	0.896	-0.130	-0.111
US troops	0.374	0.790	0.340	0.027
NPT	-0.570	-0.771	-0.186	0.017
UN Peace Missions	0.086	0.053	0.912	0.075
UNGA Important Voting (%)	-0.101	-0.057	-0.684	0.554
Political Globalization	0.492	0.512	0.575	-0.141
UNGA Voting overall (%)	-0.114	-0.247	-0.180	0.765
UNSC Membership	0.084	0.355	0.278	0.516
Extraction Method: Principal Component Analysis.				
Rotation Method: Varimax with Kaiser Normalization.				
a. Rotation converged in 7 iterations.				

Table6: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.8020
Bartlett's Test of Sphericity	Approx. C	5600.7150
	df	171.0000
	Sig.	0.0000

The Kaiser-Meyer-Olkin Measure of sampling adequacy and Bartlett's test of sphericity also confirm the significance of the rotated component matrix derived from principal factor analysis. The following figure 7 shows the Scree plot which suggests the significance of first four factors in explaining the variance.

Figure7: Scree Plot



Later, we developed three different indices using different approaches derived from the literature and used them as independent variables in our models of military aid and economic aid from bilateral and multilateral sources. The detail is mentioned in methodological section to construct an index following different approaches to construct an index. All three different measures of geopolitical potential were found to have almost similar results with little bit variation in coefficient significance in few models.

4.1 US Military Aid

Many studies in the literature have used the US military assistance as a measure of geopolitical interests of donors. We also consider this measure of geopolitical interests of donors to determine its response to the geopolitical significance of recipients. We hypothesise that the donors' geopolitical interests respond to the geopolitical significance of recipients. We developed different models using pooled OLS, fixed effect, and censored Tobit (normal) estimation techniques to determine the response of US military aid to geopolitical significance of South Asian recipients. As mentioned in methodology section, we will be using variety of variables, individually and in interactive forms, to well analyse their relationship with the US military aid. Therefore, multiple equations have been estimated to validate and strengthen the results.

4.1.1 Pooled OLS Estimations

The estimations indicate the significantly positive role of geopolitical significance of recipients in influencing the US military aid. We find the quadratic relationship between the US military aid and geopolitical potential of recipients. Firstly, the US military aid increases as the geopolitical significance increases but diminishes eventually. The results show that the US military aid initially rises by 6.7 percent and eventually diminishes by 0.29 percent on average due to one percent rise in geopolitical potential *ceteris paribus*. This indicates that when the recipients' natural and man-made resources starts improving and drive towards acquisition of conventional military capabilities along with the suitable outward defence policy and participation in UN voting in favour of recipients, the military aid from the US responds strongly positive. But later, when a country reaches towards sufficiency of natural and man-made resources, starts taking an advantage of geographical features and natural resources, raises military strength, and achieves some conventional modern military capabilities, the US military aid starts diminishing. Further, along with these developments, the improvement in infrastructural proportion of geopolitical potential induces less scope of aid after a certain level. As it carries a bunch of factors but their overall improvement either due to all or few, could be a reason for the reduction in flows of military aid. Conversely, the aid may start moving more towards development rather carrying influence of geopolitical significance. Of course, one cannot deny the strategic power play and alliances during the Cold War, i.e. the USSR-Indo and Pak-US defence relations. Similarly, the role of Afghan factor (the Russian invasion and later the War on Terror) also sounds important in determining the flows for the neighbouring or strategically important countries.

Since, we are considering the post-Cold War period, therefore, only the WoT period and its alliance relevance seem important for our models than historical Cold-War defence relations. Therefore, this relationship between the US military aid and geopolitical significance of recipients explains post-Cold War scenario. We separately observed the US alliance and WoT period effects in our models to isolate the geopolitical significance from the coalition and war period effects. The results indicate that if a country is in alliance with US during the WoT, then the US military aid rises by 2.29 percent. The lag effect of the US alliance which indicates the previous track record of alliance has much stronger effect on the US military aid which significantly rises by 4.2 percent on average.

The War on Terror period effect also raises the flows of the US military aid. The pooled OLS models show that the military aid increases by 0.86 percent on average during the WoT compared to Inter-War period. Similarly, the geopolitical potential further carries 0.08 percent US military aid during the WoT once it is interacted with the war period effect. The results also indicate the important role of nuclear weapon stockpiles. If a country's nuclear weapons stock rises by 1 unit, then the US military aid positively changes by 0.02 percent.

Table 7: US Military Aid - Pooled OLS Estimations

	US MILITARY AID POOLED OLS MODELS			
	I	II	III	IV
Dependent Variable: LUSMILAID				
Independent Variables	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**
C	-34.67341**	-20.9586	-20.13578	-19.71162
US Ally	2.290604***			
US Ally(-1)		4.255411***	4.247542***	4.192743***
LGPFAWTD	8.751248***	6.139587***	5.977236**	5.893553**
LGPFAWTD^2	-0.387846***	-0.274041***	-0.265478**	-0.261139**
NW STOCKPILES	0.023913***	0.008334		
LGPFAWTD* NW STOCKPILES			0.000801	
NW STOCKPILES*WT				0.009777
POLITY2	0.027225	-0.106552	-0.092788	-0.09284
DEMOC	-0.113058	0.163015	0.136118	0.132594
WT	0.82395***		0.888407***	0.885138***
LGPFAWTD*WT		0.083288***		
Obs.	103	99	99	99
R-squared	0.7321	0.8088	0.8095	0.8091
Adjusted R-squared	0.7113	0.7941	0.7949	0.7944
F-Statistics	37.0700	54.9658	55.2274	55.0659
Prob (F-Stats)	0.0000	0.0000	0.0000	0.0000
Durbin-Watson stats	1.4775	1.4908	1.4829	1.4927
Jarque-Bera stats	3.7274	3.4815	3.5374	3.6941
Prob (JB)	0.1552	0.1754	0.1705	0.1578
Breusch-Pagan LM stats	11.0797	11.8190	11.0354	11.2663
Prob (BP)	0.3513	0.2974	0.3548	0.3372

***, **, * represent the significance at 1%, 5%, and 10% levels respectively.

4.1.2 OLS Fixed Effect Models

The fixed effect models also indicate a linear positive relation between the geopolitical potential and the US military aid. But here, the relationship is comparatively weaker than the pooled OLS models. The lag effect is found stronger for the role of geopolitical potential in influencing the US military aid. The results indicate that one percent rise in geopolitical potential in last year raises the military aid from the US in current time period by 2.15 percent on average *ceteris paribus*.

The recent previous track of a recipients' alliance with US also carries important role in determining the flows of military aid. The results depict that if a country remained a US ally in previous time period, then it raises military aid in current time period by 5 percent on average. The period effect of WOT is found relatively weaker than the pooled OLS models. The results indicate that the US military aid rises by 0.53 percent on average during the WoT than inter-war period.

Table 8: US Military Aid- OLS Fixed Effects Estimations

US MILITARY AID FIXED EFFECT MODELS			
	I	II	III
Dependent Variable: LUSMILAID			
Independent Variables	**Coefficient**	**Coefficient**	**Coefficient**
C	-8.707751	-13.78725	-8.95721
US Ally(-1)	4.946827***	5.148996***	4.935854***
LGPFAWTD(-1)	1.980917*	2.465666**	2.004784*
NW STOCKPILES	0.003706		
NW STOCKPILES*WT			0.003609
NUCLEAR WARHEADS		-0.406383	
POLITY2	-0.150715	-0.136954	-0.150958
DEMOC	0.25194	0.232723	0.251998
WT	0.531848*	0.551801*	0.524189*
Obs.	99	99	99
R-squared	0.8238	0.8245	0.8238
Adjusted R-squared	0.8037	0.8046	0.8037
F-Statistics	41.1230	41.3476	41.1202
Prob (F-Stats)	0.0000	0.0000	0.0000
Durbin-Watson stats	1.5403	1.5381	1.5439
Jarque-Bera stats	4.0541	4.7331	3.9749
Prob (JB)	0.1318	0.0939	0.1371
Breusch-Pagan LM stats	9.7372	11.2470	9.7701
Prob (BP)	0.4638	0.3386	0.4609

***, **, * represent the significance at 1%, 5%, and 10% levels respectively.

Comparison of Pooled OLS and Fixed Effect Models:

Both the pooled OLS and fixed effect models show the unbiased results. The comparison of both the estimation techniques on basis of F-statistics, the pooled OLS models are relatively much higher than the fixed effect. Therefore, we prefer pooled OLS models results.

4.1.3 Censored Tobit (Normal) Estimations

Alternatively, we also applied the censored Tobit (normal) estimation approach since the US military aid is found zero absent or zero in few years for some countries. The Tobit model will only consider the positive value under normal situation rather truncated to develop a relationship between the US military and independent variables. The Tobit estimations again develop a polynomial relationship between the geopolitical potential of South Asian recipients and the US military aid. The results indicate that one percent rise in geopolitical potential initially brings 5.97 percent rise in the *desired* US military aid and eventually diminishes marginally by 0.26 percent on average *(ceteris paribus)* due to the same reasons as explained earlier.

The US alliance in a recent time period also plays a significantly positive role in influencing the US military aid in current time. The results illustrates that if a country remained a US ally in last time period, then it raises the *desired* military aid from US by 4.21 percent on average compared to countries not in alliance with US.

Similarly, the period effect has been found stronger in explaining the disbursement of the US military aid. The results explain that the *desired* US military aid rises by 0.87 percent on average during the WoT than the inter-War period.

The geopolitical potential also carries some strength due to WoT period effect. When the geopolitical potential interacts with WoT period, we find that it further raises *desired* military aid from US by 0.08 percent.

Table 9: US Military Aid Models- Censored Tobit (normal) Estimations

US MILITARY AID CENSORED (NORMAL) TOBIT ESTIMATIONS					
	I		II		III
Dependent Variable: LUSMILAID					
Independent Variables	**Coefficient**		**Coefficient**		**Coefficient**
C	-19.71162		-19.45973		-20.9586*
US Ally(-1)	4.192743***		4.197045***		4.255411***
LGPFAWTD	5.893553***		5.852649***		6.139587***
LGPFAWTD^2	-0.261139***		-0.259713***		-0.274041***
NW STOCKPILES			0.010003		0.008334
NW STOCKPILES*WT	0.009777				
POLITY2	-0.09284		-0.091321		-0.106552
DEMOC	0.132594		0.132476		0.163015
WT	0.885138***		0.896869***		
LGPFAWTD*WT					0.083288***
Obs.	99		99		99
Scale: C	0.9123		0.9118		0.9129
Jarque-Bera stats	3.6941		3.7274		3.4815
Prob (JB)	0.1578		0.1552		0.1754

***, **, * represent the significance at 1%, 5%, and 10% levels respectively.

4.2 Bilateral DAC Economic Aid:

We applied both pooled OLS and fixed effect estimation techniques to determine the results based on commonalities and heterogeneity respectively. We estimated multiple equations using both techniques by incorporating range of variables, individually and interactive forms, to further validate the results, and strengthen the analysis.

4.2.1 Pooled OLS Estimations

The pooled ordinary least squares estimations in Table 10 show that geopolitical potential, share of donors in recipients' imports, alliance with the US in War of Terror, population size, flows from non-DAC donors and multilateral sources, and domestic terrorism are substantially significant in influencing the flows of aid from Development Assistance Committee (DAC) members while the per capita income, (negative) current account balance, democracy, political stability, trade openness, (freedom from) corruption, accession of

nuclear weapons, and War on Terror period have not been found significant. The economic growth has been found playing some partial role in influencing aid from DAC donors. Interestingly, the geopolitical potential of recipients has been found most important in influencing the supply of foreign aid to South Asian economies (see Table 10). We will be discussing each variable in detail here under:

The Geopolitical potential index, combination of different factors derived from factors analysis mainly the geostrategic features, outward defence policy, diplomatic relations, and role and participation in the United Nations, mainly affects the supplies of foreign aid. Earlier studies have mainly focused on geopolitical interests of donors but very few have attempted to determine the geopolitical potential of recipients. We have tried to determine geopolitical potential of recipients too. The construction of geopolitical potential index has been discussed in detail earlier in methodology section.

Interestingly, we came across with a different pattern of geopolitical potential of recipients with respect to its influence on aid than earlier studies either reporting geopolitical interests of donors or geopolitical significance of recipients. We found that the relationship between geopolitical potential of recipients and foreign aid from DAC donors is polynomial rather linear. Initially, as the geopolitical potential changes, it brings large flows of foreign aid from DAC donors, but gradually it starts diminishing but with less magnitude. The results depict that one percent rise in geopolitical potential brings initially on average around 8 percent rise in DAC economic aid, and later diminishes by 0.35 percent. The flows of foreign aid from DAC donors do not fall as much as they positively behave during the increasing returns phase. This relationship suggests that once the economy reaches to a certain larger value on scale of geopolitical potential, it marginally loses its attraction for flows of aid from DAC donors. For example, if a country becomes geopolitically much significant and become a power in the region in terms of its geostrategic features, defence policy, and on diplomatic fronts, or may get influential in making decisions about the region by gaining such strengths then aid may start declining towards giants of the region.

A cross-sectional view of geopolitical potential will further clear this relationship. If a country raises its military strength (both in terms of capabilities attained through expenditures or in its size) or/ and attracts US military aid then it further raises geopolitical potential due to gained strength in military capabilities, a component of geopolitical potential. The effect of

geopolitical potential on average is much higher in case of bilateral economic aid than the US military aid. Similarly, if a country produces more of natural resources essential for energy like coal and oil; invests more in strategic infrastructure in building more network of highways, railroads, air and sea-ports; and aligns itself on diplomatic fronts with US both on bilateral and United Nations forums, then these all features take the economy towards the sufficiency rather much dependence on foreign flows. Conversely, the positive growth of geopolitical potential with either low levels or in absence of few components of index keeps the economy in phase of receiving further higher flows of aid from DAC donors.

Considering multiple models of ordinary least squares, the results show that one percent rise in geopolitical potential can bring 8 percent more flows of aid from DAC donors on average *ceteris paribus*. The geopolitical potential during the war on terror period has not been observed significant which indicates that aid could have been given mainly due to geopolitical interests of donors rather recipients potential.

The share of main five DAC donors (US, UK, Japan, Germany and France) in imports of South Asian countries shows significantly negative relationship. Studies done on economic interests of donors have mainly reported positive relationship between aid disbursed and share of donors in recipients' imports. The results show that one percentage increment in joint share of five donors in recipients' imports can reduce DAC aid by 0.20 percentage points on average.

The US alliance is also an important variable that positively contribute in flows of DAC aid. The results significantly show that if a country becomes a US ally, then it is likely to a have 0.70 percent more aid than a country not in alliance with US in War against terrorism. Interestingly, geopolitical potential during the War on Terror period has not been found significant. Even, this has not been found significant with having nuclear weapons but if a country is an ally with US in war against terrorism, the geopolitical potential coupled with nuclear weapons, will have positive impact on flows of aid from DAC donors. This means that both nuclear weapons or war on terror period have no significant impact on flows of DAC aid separately but US ally is an important factor which make them significant because of its overwhelming role independently.

Population has been found significantly positive in determining flows of aid. The results show that if a population increases by 1 million, the flows of DAC aid rises by around 0.003 percent on average. The population has been found significant in many of the earlier studies. Indeed, it is an important factor. Some researchers include population in geopolitical potential as well but we excluded the role of population in developing geopolitical potential to observe this variable separately. The large size of population, if given education, can become an important source of exports of human capital. On other hand, it also increases the scope of poverty for a country with fewer resources.

Table 10: DAC AID- Pooled OLS Estimations

			DAC AID OLS METHOD					
Dependent Variable: LDACAID	**I**	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**
Independent Variables	**Co-efficient**	**Co-efficient**	**Co-efficient**	**Co-efficient**	**Co-efficient**	**Co-efficient**	**Co-efficient**	**Co-efficient**
C	-27.58706***	-35.90933***	-39.51535***	-44.35582***	-38.53718***	-45.74503***	-32.85463***	-26.78301***
LGNPPC$	0.065487	0.148393*	0.126283	0.108348	0.096124	0.103764	0.052036	0.073464
POLITY2	-0.011189	-0.005357	-0.02164	-0.045036	-0.013884	-0.042328	-0.002087	-0.012145
LGPFAWTD	6.258389***	7.552868***	8.2711***	9.32453***	8.134788***	9.531388***	7.354302***	6.083406***
LGPFAWTD^2	-0.296956***	-0.348542***	-0.386082***	-0.443446***	-0.380174***	-0.452799***	-0.35377***	-0.288782***
LTRADE	-0.111263	0.051696	0.107179	0.066863	0.07937	0.152828	-0.074061	-0.096109
CURRENT_ACCOUNT(DUMMY)	-0.073051	-0.077743	-0.053471	-0.046899	-0.0453491			
LSHARE OF DONORS	-0.151203***	-0.232729***	-0.258095***	-0.188081***	-0.212671***	-0.203924***	-0.151981***	-0.171457**
1/LGDPGROWTH	-0.0052	-0.010356**	-0.007997*	-0.004769	-0.007486*	-0.004715	-0.003542	-0.005958
LMULTIAID	0.192613***	0.145138**	0.174428***	0.134286***	0.160789***	0.136836**	0.167066***	0.206539***
NONDACAID(-1)	0.002056***	0.003533***	0.002248***	0.001941***	0.002163***	0.002011***	0.001971***	0.002228***
HCTB_DEATHS(-1)*WT	0.000955***							
POPULATION_TOTAL	0.00000000269***	0.00000000259***	0.00000000301***	0.00000000375***	0.00000000297***	0.00000000395***	0.00000000337***	0.00000000264***
DEMOC		0.002596	0.016705	0.085434	0.008294	0.078977		
HF_CORRUPTION		-0.008048	-0.007214	-0.00726*	-0.006547	-0.007754*		
HCTB_DEATHS(-1)			0.000844***	0.000521***	0.000829***	0.000513**	0.00062***	0.000912***
WT			-0.093282					
NUCLEAR_WARHEADS*US_ALLY*WT				0.530922				
NUCLEAR_WARHEADS*LGPFAWTD					0.001295			
NUCLEAR_WARHEADS*LGPFAWTD*WT						-0.014902		
US_ALLY						0.703178***		
NUCLEAR_WARHEADS*LGPFAWTD*WT*US_ALLY							0.038329***	
LGPFAWTD*WT								-0.001285
Obs.	109	109	98	98	98	98	98	109
R-squared	0.8402	0.8128	0.8459	0.8615	0.8442	0.8640	0.8534	0.8396
Adjusted R-squared	0.8221	0.7863	0.8199	0.8381	0.8180	0.8391	0.8351	0.8195
F-Statistics	46.3805	30.7467	32.5595	36.8706	32.1282	34.7224	46.5685	41.8687
Prob (F-Stats)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Durbin-Watson stats	1.0944	1.0817	1.1958	1.0954	1.1322	1.1395	1.0368	1.1180
Jarque-Bera stats	4.858	4.1913	5.3638	4.5600	3.7594	4.4428	4.1187	5.5259
Prob (JB)	0.0882	0.1230	0.0685	0.1022	0.1526	0.1085	0.1275	0.0631
Breusch-Pagan LM stats	16.9309	17.6325	14.2045	12.6897	13.3125	10.5850	17.6985	14.3248
Prob (BP)	0.0759	0.0615	0.1640	0.2415	0.2067	0.3908	0.0603	0.1587

LGNPPC$= Log GNP Per Capita; LGPFATWD= Log of Geopolitical Potential Index (factor loadings weighted method); LTRADE = Log Trade (% of GDP), POLTY2 = Political Stability; DEMOC = Democracy; WT = War on Terror, HCTB_DEATHS = Number of Deaths from High Casualty Terrorist Bombings; LMULTIAID = Log of Multilateral Aid; HF_CORRUPTION = Freedom from Corruption

***, **, * represent the significance at 1%, 5%, and 10% levels respectively.

Multilateral aid from different sources like IMF, World Bank, etc., has also been found significantly positive in determining the flows of DAC aid to South Asian countries. If a country is given multilateral aid, there are more chances that it would get higher flows from DAC donors. The results display that on average a country receives 0.17 percent more aid if a multilateral aid rises by 1 percentage point.

Similarly, the flows from non-DAC donors have also been found significantly positive. If a non-DAC aid rises by 1 million dollars in last time period, then the DAC aid rises by 0.0025 percent on average in current time period. The outcome of non-DAC aid on flows of DAC aid has not been found much effective compared to multilateral flows.

The domestic terrorism in terms of high casualties from terrorists' bombings has been found significant in determining the flows of aid from DAC donors. The results depict that if one person dies from terrorists' bombings leads to a 0.0008 percent rise in DAC aid on average. Alternatively, 100 percent dying in bombings raises the DAC Aid by 0.08 percent on average. This effect has been found stronger during the War on Terror (WT) in which it raises the DAC aid by 0.09 percent per 100 casualties from terrorists' bombings.

The economic growth has been observed partially significant in some models. The reciprocal relationship has been witnessed along with negative coefficient, which describes the positive nature of relationship between DAC aid and economic growth. If a rate of economic growth changes by 1 percentage point then on average the DAC aid rises between 0.007 to 0.01 percent. Overall, this relationship is weaker compared to other significant variables discussed earlier.

Further, OLS least square dummy variable method was also applied by introducing dummies for South Asian economies to determine their individual significance. Table 11 shows the significant quadratic relationship between the geopolitical potential and bilateral economic aid from DAC sources. Per capita income, share of major donors in recipients imports, aid from non-DAC sources and multilateral agencies, and domestic terrorism were found important in determining aid flows. The dummies for regional economies were also observed significant in least square dummy variable models as shown below in Table 11.

Table 11: DAC Aid- OLS Least Square Dummy Variables (LSDV) Estimations

DAC AID OLS Least Square Dummy Variable (LSDV)			
Dependent Variable: LDACAID			
Independent Variables	**Co-efficient**	**Co-efficient**	**Co-efficient**
C			
LGNPPC$	0.350631**	0.34942**	0.38398**
POLITY2	-0.040642	-0.040017	-0.048703
LGPFAWTD	2.238284***	2.260283***	2.255057***
LGPFAWTD^2	-0.186946***	-0.189066***	-0.190762***
LTRADE	0.195157	0.196952	0.220087
LSHARE OF DONORS	-0.354865**	-0.353543**	-0.343787**
1/LGDPGROWTH	-0.005125	-0.005061	-0.004507
LMULTIAID	0.167642***	0.166371***	0.159136***
NONDACAID(-1)	0.001888***	0.001885***	0.001876***
CURRENT_ACCOUNT (D)	0.045725	0.064269	0.030755
POPULATION_TOTAL	1.96E-09	1.95E-09	1.26E-09
DEMOC	0.052035	0.051243	0.070158
HF_CORRUPTION	0.004542	0.004692	0.004726
HCTB_DEATHS(-1)	0.000704**	0.000701***	0.00064***
WT			
NUCLEAR_WARHEADS*LGPFAWTD*WT			0.010458
LGPFAWTD*WT		0.000834	
DINDIA	4.648409**	4.733197**	5.403853***
DNEPAL	-1.708055***	-1.725302***	-1.835375***
DPAK	2.006841**	2.036595**	2.019639**
DSL	-1.544158***	-1.558645***	-1.723629***
Obs.	98	98	98
R-squared	0.8623	0.8623	0.8637
Adjusted R-squared	0.8352	0.8332	0.8347
F-Statistics			
Prob (F-Stats)			
Durbin-Watson stats	1.2391	1.2358	1.1924
Jarque-Bera stats	5.1915	5.1540	4.8786
Prob (JB)	0.0746	0.0760	0.0872
Breusch-Pagan LM stats	13.2755	13.2948	12.1257
Prob (BP)	0.2087	0.2077	0.2767
LGNPPC$= Log GNP Per Capita; LGPFATWD= Log of Geopolitical Potential Index (factor loadings weighted method);			
HCTB_DEATHS = Number of Deaths from High Casualty Terrorist Bombings; LMULTIAID = Log of Multilateral Aid;			
LTRADE = Log Trade (% of GDP); HF_CORRUPTION = Freedom from Corruption			

***, **, * represent the significance at 1%, 5%, and 10% levels respectively.

4.2.2 OLS Fixed Effects Model

We also applied fixed effects model to take into account the heterogeneity among five countries of South Asia. The results we obtained from fixed effects and pooled OLS models are more or less same except our main concerning variable, geopolitical potential index, and significance of few variables like trade openness and per capita income (see Table 12).

The fixed effects models indicate the negative relationship between geopolitical potential and flows of DAC aid. The difference may be due to special features of each country such as population or size or value of geopolitical potential. Like, when we get the negative coefficient of geopolitical potential, only India has a negative intercept rest all countries of South Asia are found to have positive intercepts, which actually validates the heterogeneity due to large size of a country in the region. The geopolitical potential has not been found significant during the war on terror which indicates that donors' geopolitical interests outweigh the recipients' potential during the war on terror.

The share of donors in imports of recipients again is found to have a negative relationship with flows of aid from DAC donors but weaker compared to pooled OLS results. The partially significant results indicate that one percentage rise in share of five main donors (US, UK, Japan, Germany and France) lead to a 0.35 percent fall in flows of DAC aid on average *ceteris paribus.*

Similarly, the political stability is also found partially significant in few of models with a negative coefficient through reciprocal relationship, indicating a positive effect on flows of DAC aid.

Trade openness is also observed partially significant in few models, indicating positive relationship through negative coefficient with reciprocal shape. On average of significant models, one percentage rise in trade to GDP ratio leads to 4.80 percentage rise in DAC aid.

The per capita income has been observed strongly significant in fixed effects models, depicting a positive relationship. On average, one percentage rise in per capita income can raise DAC flows by 0.50 percent.

Population has also been observed significant. If population increases by 1 million then aid from DAC donors rises by 0.016 percent on average initially and later diminishes by a very minute magnitude as the curve has been observed polynomial. We also observed the linear relationship of population in few models as shown in table which explain that on average DAC aid rises by 0.002 percent if population rises by 1 million.

Like pooled OLS estimations, we found same positive relationship of DAC aid with multilateral aid and non-DAC bilateral aid. If multilateral aid to South Asian economies rises by 1 percent, then DAC aid changes positively by 0.16 percent on average. Further, if aid from Non-DAC donors rises by 1 million dollars in last year, then DAC aid rises by 0.0018 percent on average in current time period. The influence of multilateral aid on DAC aid has been found stronger than non-DAC aid.

The presence of nuclear warheads has also been found quite significant in fixed effects models. If a country possesses nuclear warheads, then DAC aid responds rises by 6 percent on average as compared to a country without nuclear warheads. But when it is interacted with geopolitical potential index, it significantly behaves negatively and explains reduction in flows of DAC aid by 0.50 percent on average.

Similarly, US ally is also found to be important variable significantly influencing flows of DAC aid. If a country is an ally of US during the war on terror, then DAC aid rises by 0.32 percent. If a country is a US ally and possesses nuclear warheads, then DAC aid would rise by 0.62 percent on average.

The domestic terrorism has also been observed significantly explaining DAC aid. If high casualty terrorists' bombing rises by 1 more incident last year, then DAC flows will rise by 0.026 percent in current time period. Similarly, if number of deaths from high casualty terrorists' bombing rises by 100 last year, then DAC aid rises by 0.07 percent and during the War on Terror, it responds positively by 0.06 percent on average. This depicts that donors ideology regarding War on Terror also considers the terrorists attacks in recipient countries.

Table 12: DAC Aid - Fixed Effects Estimations

	DAC AID OLS Fixed Effect Models		
	I		II
Dependent Variable: LDACAID			
Independent Variables	**Co-efficient**		**Co-efficient**
C	19.69648***		19.82185***
LGDPGROWTH	-0.086843		-0.0867
LGNPPC$	0.517819***		0.512118***
1/LTRADE	4.932693*		4.918254*
CURRENT_ACCOUNT_DUMMY	0.022989		0.0194
LSHAREOFDONORS	-0.292692*		-0.294591*
DEMOC	0.023392		0.023389
1/POLITY2	-0.312442		-0.307152
LGPFAWTD	-1.803164***		-1.80844***
POPULATION__TOTAL	0.0000000136***		0.0000000135***
POPULATION__TOTAL^2	-5.36E-18***		-0.00000000000000000053***
LGPFAWTD*WT			0.000912
Obs.	114		114
R-sqaured	0.8139		0.8139
Adjusted R-sqaured	0.7875		0.7854
F-Stats	30.9096		28.5601
Prob (F-stats)	0.0000		0.0000
Durbin-Watson Stats	1.0443		1.0409
Jarque-Bera Stats	2.9569		2.8786
Prob. (JB)	0.2280		0.2371
Breusch-Pagan Stats	16.9278		16.9861
Prob. (BP)	0.0760		0.0747

***, **, * represent the significance at 1%, 5%, and 10% levels respectively.

Table 12: DAC Aid - Fixed Effects Estimations (continued)

	DAC AID OLS Fixed Effect Models				
	III	IV	V	VI	VII
Dependent Variable: LDACAID					
Independent Variables	**Co-efficient**	**Co-efficient**	**Co-efficient**	**Co-efficient**	**Co-efficient**
C	19.32102***	17.02555**	19.61205***	17.019**	18.26262**
LGNPPC$	0.477123***	0.491551***	0.489017***	0.512934***	0.428545
POPULATION__TOTAL	0.000000014***	0.0000000161**	0.0000000124*	2.11E-09	-1.16E-08
POPULATION__TOTAL^2	-5.46E-18***	-6.24E-18**	-4.94E-18*	-7.76E-19	4.79E-18
1/POLITY2	-0.497706	-0.558094	-0.508062	-0.649406*	-0.473523
DEMOC	0.015554	0.016346	0.016765	0.031061	-0.003109
LGPFAWTD	-1.811914***	-1.661361**	-1.799947***	-1.268965**	-1.046159
1/LTRADE	2.287419	2.808781	1.809003	-1.889255	-5.023066
LSHAREOFDONORS	-0.2187	-0.210596	-0.223392	-0.30413	-0.31014
LGDPGROWTH	-0.052656	-0.05754	-0.053886	-0.070629	-0.069711
LMULTIAID	0.168457***	0.180444***	0.162374**	0.135234**	0.185183**
NON_DAC_TOTAL_AID(-1)	0.001875***	0.001806**	0.001905**	0.001981**	0.001385**
HF_CORRUPTION	0.005908	0.004636	0.005925	0.002197	0.005072
LGPFAWTD*WT		-0.007124		-0.012575	-0.002167
LGPFAWTD*WT*NUCLEAR_WARHEADS			0.004899		
US_ALLY*WT				0.627791***	
US_ALLY*NUCLEAR_WEAPON_STOCKPILE*WT					0.012335***
US_ALLY*NUCLEAR_WARHEADS*WT					
US_ALLY*NUCLEAR_WARHEADS					
HCTB_INCIDENTS_PER_YEAR(-1)*WT					
HCTB_INCIDENTS_PER_YEAR(-1)					
HCTB_DEATHS(-1)					
Obs.	98	98	98	98	98
R-sqaured	0.8415	0.8423	0.8417	0.8578	0.8636
Adjusted R-sqaured	0.8102	0.8088	0.8081	0.8255	0.8325
F-Stats	26.8724	25.1343	25.0232	26.4800	27.7867
Prob (F-stats)	0.0000	0.0000	0.0000	0.0000	0.0000
Durbin-Watson Stats	1.0840	1.1120	1.0654	1.1273	1.0925
Jarque-Bera Stats	3.8829	4.5355	3.4392	3.5946	5.3053
Prob. (JB)	0.1435	0.1036	0.1792	0.1658	0.0705
Breusch-Pagan Stats	14.4351	14.8252	13.9571	12.7945	9.9487
Prob. (BP)	0.1541	0.1386	0.1750	0.2354	0.4450

LGNPPC$= Log GNP Per Capita; LGPFATWD= Log of Geopolitical Potential Index (factor loadings weighted method); LTRADE = Log Trade (% of GDP), HCTB_DEATHS = Number of Deaths from High Casualty Terrorist Bombings; LMULTIAID = Log of Multilateral Aid; HF_CORRUPTION = Freedom from Corruption POLTY2 = Political Stability; DEMOC = Democracy; WT = War on Terror.

***, **, * represent the significance at 1%, 5%, and 10% levels respectively.

Table 12: DAC Aid - Fixed Effects Estimations (continued)

	DAC AID OLS Fixed Effect Models				
	VIII	IX	X	XI	XII
Dependent Variable: LDACAID					
Independent Variables	**Co-efficient**	**Co-efficient**	**Co-efficient**	**Co-efficient**	**Co-efficient**
C	17.0190**	17.0190**	17.16299**	17.09172**	19.52924***
LGNPPC$	0.512934***	0.512934***	0.42397**	0.414808**	0.42000***
POPULATION__TOTAL	2.11E-09	2.11E-09	4.49E-09	4.33E-09	
POPULATION__TOTAL^2	-7.76E-19	-7.76E-19	-1.65E-18	-1.52E-18	
1/POLITY2	-0.649406*	-0.649406*	-0.369638	-0.354641	-0.417142
DEMOC	0.031061	0.031061	-0.006743	-0.008555	
LGPFAWTD	-1.268965**	-1.268965**	-1.347594**	-1.338064**	-1.426436**
1/LTRADE	-1.889255	-1.889255	-0.401156	-0.314247	-1.723629
LSHAREOFDONORS	-0.30413	-0.30413	-0.241089	-0.243787	-0.304547*
LGDPGROWTH	-0.070629	-0.070629	-0.02335	-0.019776	-0.022188
LMULTIAID	0.135234**	0.135234**	0.178472***	0.181426***	0.149938**
NON_DAC_TOTAL_AID(-1)	0.001981**	0.001981**	0.001648**	0.00169**	0.001745**
HF_CORRUPTION	0.002197	0.002197	0.005713	0.005357	0.006119
LGPFAWTD*WT	-0.012575	-0.012575	-0.004321	-0.003253	0.002808
LGPFAWTD*WT*NUCLEAR_WARHEADS					
US_ALLY*WT					
US_ALLY*NUCLEAR_WEAPON_STOCKPILE*WT					
US_ALLY*NUCLEAR_WARHEADS*WT	0.627791***				
US_ALLY*NUCLEAR_WARHEADS		0.627791**			
HCTB_INCIDENTS_PER_YEAR(-1)*WT			0.025548**		
HCTB_INCIDENTS_PER_YEAR(-1)				0.026522**	
HCTB_DEATHS(-1)					0.000719***
Obs.	98	98	98	98	98
R-sqaured	0.8578	0.8578	0.8514	0.8525	0.8509
Adjusted R-sqaured	0.8255	0.8255	0.8176	0.8189	0.8237
F-Stats	26.4800	26.4800	25.1473	25.3564	31.2137
Prob (F-stats)	0.0000	0.0000	0.0000	0.0000	0.0000
Durbin-Watson Stats	1.1273	1.1273	1.0446	1.0501	1.1255
Jarque-Bera Stats	3.5946	3.5946	4.9455	5.9519	5.0727
Prob. (JB)	0.1658	0.1658	0.0844	0.0511	0.0792
Breusch-Pagan Stats	12.7945	12.7945	14.3474	14.3596	14.2105
Prob. (BP)	0.2354	0.2354	0.1577	0.1572	0.1636

LGNPPC$= Log GNP Per Capita; LGPFATWD= Log of Geopolitical Potential Index (factor loadings weighted method); LTRADE = Log Trade (% of GDP), HCTB_DEATHS = Number of Deaths from High Casualty Terrorist Bombings; LMULTIAID = Log of Multilateral Aid; DEMOC = Democracy; HF_CORRUPTION = Freedom from Corruption POLTY2 = Political Stability;WT = War on Terror.

***, **, * represent the significance at 1%, 5%, and 10% levels respectively.

Table 12: DAC Aid - Fixed Effects Estimations (continued)

	OLS Fixed Effect Models						
	XIII	XIV	XV	XVI	XVII	XVIII	XIX
Dependent Variable: LDACAID							
Independent Variables	**Co-efficient**	**Co-efficient**	**Co-efficient**	**Co-efficient**	**Co-efficient**	**Co-efficient**	**Co-efficient**
C	22.98357***	22.62947***	20.22589***	17.69209***	17.2123**	17.8471***	17.59081**
LGNPPC$	0.475081***	0.516243***	0.521937***	0.433071***	0.28266*	0.268629	0.278124
1/POLITY2	-0.293032	-0.368604	-0.15301	-0.256697	-0.167723	-0.167902	-0.157988
LGPFAWTD	-1.786486***	-1.747172***	-1.46013**	-1.193731**	-1.214851**	-1.244184**	-1.247604**
1/LTRADE	-0.505584	-1.739213	-4.977819**	-4.569388*	-1.02637	-1.08975	-1.021585
LSHAREOFDONORS	-0.359399*	-0.357317*	-0.293776	-0.270916	-0.340064*	-0.356637**	-0.339318*
LGDPGROWTH	-0.052036	-0.053485	-0.087511	-0.052999	-0.039948	-0.039959	-0.038801
LMULTIAID	0.145174**	0.152588**	0.153531**	0.150413***	0.166385***	0.146012**	0.164618***
NON_DAC_TOTAL_AID(-1)	0.00260***	0.002813***	0.002077***	0.001263*	0.001251*	0.001535**	0.001256*
HF_CORRUPTION	0.007101	0.007183	0.005531	0.004719	0.005091	0.005459	0.005337
LGPFAWTD*WT*NUCLEAR_WARHEADS	0.016372*						
LGPFAWTD*NUCLEAR_WARHEADS		0.000414	-0.492181***	-0.443952***	-0.575672***	-0.417842**	-0.574036***
NUCLEAR_WARHEADS			6.13365***	5.469089***	6.943282***	4.879703**	6.919101***
HCTB_DEATHS(-1)*WT				0.000661***	0.000632***	0.000473**	0.000628***
POPULATION_TOTAL					0.0000000028*	0.00000000262*	0.0000000028*
US_ALLY*WT						0.320958*	
WT							0.014045
Obs.	98	98	98	98	98	98	98
R-sqaured	0.8335	0.8272	3.8756	0.8619	0.8677	0.8729	0.8678
Adjusted R-sqaured	0.8054	0.7981	0.1441	0.8346	0.8396	0.8440	0.8376
F-Stats	29.6677	28.3752	29.6530	31.5730	30.8614	30.1335	28.7908
Prob (F-stats)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Durbin-Watson Stats	1.0050	1.0297	1.1123	1.1814	1.2879	1.2409	1.2842
Jarque-Bera Stats	1.7381	2.2786	3.8756	4.8698	4.1181	5.4963	4.0410
Prob. (JB)	0.4194	0.3201	0.1441	0.0877	0.1276	0.0641	0.1326
Breusch-Pagan Stats	12.5099	15.0561	12.8431	11.0221	8.1028	8.0886	7.9535
Prob. (BP)	0.2524	0.1300	0.2326	0.3558	0.6188	0.6202	0.6334
LGNPPC$= Log GNP Per Capita; LGPFATWD= Log of Geopolitical Potential Index (factor loadings weighted method); LTRADE = Log Trade (% of GDP), POLTY2 = Political Stability;							
HCTB_DEATHS = Number of Deaths from High Casualty Terrorist Bombings; LMULTIAID = Log of Multilateral Aid; HF_CORRUPTION = Freedom from Corruption							
DEMOC = Democracy; WT = War on Terror.							

***, **, * represent the significance at 1%, 5%, and 10% levels respectively.

Comparison of Pooled OLS and Fixed Effect Models:

While comparing the pooled OLS and fixed effects models, we found pooled OLS more appropriate through comparative F-statistics which are far higher in OLS methods. Since, we are more interested in common results invariant across time and individuals, we prefer pooled ordinary least square estimation methods.

4.2.3 Relation between the US Military Aid and the DAC Bilateral Economic Aid:

Studies determining the geopolitical interests of donors mainly used the US military aid as a measure to detect its role in aid disbursement. But our study goes systematically by developing a hypothesis that the geopolitical interests of (DAC) donors measured by the US military aid actually responds to the geopolitical potential of countries. Further, we develop an insight by exploring the relationship between the economic aid disbursed by the DAC donors and geopolitical potential. We find that both the US military aid and economic aid from DAC donors have been significantly influenced by the geopolitical potential of South Asian recipients. The question then arises whether there is any relationship between the military aid and the economic aid from DAC donors? We correspond to this question by developing a vector autoregressive (VAR) model to determine the direction of influence of these two types of aid. The results indicate that both the US military aid and bilateral economic aid from DAC donors are significantly influenced by their first lags. The model also illustrates that the bilateral economic aid from DAC donors is significantly affected by the US military aid while the opposite is found insignificant. To validate influence of the US military aid on DAC aid, we further applied VAR Granger Casuality and Exogeneity Wald Tests, which confirm the relationship between them (see section III of Appendix).

An important finding is drawn by comparing the effect of geopolitical potential on the US military aid and bilateral economic aid by DAC donors. The effect of geopolitical potential is found stronger in case of bilateral economic aid by DAC donors. One potential reason could be the robust effect of the US military assistance on further raising the military capabilities, which contributes in raising the geopolitical potential. Though we have not empirical tested it as it falls beyond the scope of this study but a systematic research on military capabilities and its dynamics with respect to geopolitical potential can be carried out

to further explore this effect which has not been seen in empirical literature on strategic role of aid.

4.3 Bilateral Non-DAC Economic Aid

We applied both pooled OLS and fixed effect estimation techniques to determine the results based on commonalities and heterogeneity respectively. Further, we also used censored Tobit (normal) estimation technique due to nature of this dependent variable, as explained in methodology section. We estimated multiple equations applying all techniques by incorporating range of variables, individually and interactive forms, to further validate the results, and strengthen the analysis.

4.3.1 Pooled OLS Models

The pooled ordinary least square (OLS) estimations show that geopolitical potential, population, (negative) current account balance, multilateral aid (in previous time period), War on Terror (WoT) period, nuclear warheads and domestic terrorism in recipients potentially explain the non-DAC aid disbursed to South Asian economies while the corruption is found partially significant. Democracy, political stability, per capita income, trade openness, economic growth and DAC aid are found insignificant in explaining flows of non-DAC aid (see Table 13).

The geopolitical potential index is found significantly explaining the non-DAC aid steadily. The coefficient depicts the positive relationship between non-DAC aid and geopolitical potential. On average, if the geopolitical potential increases by 1 percentage point, the non-DAC positively changes by 2 percent *ceteris paribus*. The coefficient is found to have a relatively stronger impact on aid disbursement by non-DAC countries.

Population is again found to have a significantly negative relationship with non-DAC aid. The results show that if a population rises by one million, it reduces aid jointly from non-DAC countries by 0.006 percent on average.

The current account balance is also found significant in explaining the non-DAC aid. The coefficient shows a negative relationship. Since, the current account balance is a dummy

variable (1=positive balance, 0 otherwise), therefore, the negative balance raises the aid from non-DAC sources jointly by 1.3 percent on average.

The multilateral aid also strongly explains the flows of non-DAC aid. There exists a positive relationship between flows of multilateral aid and non-DAC aid. The results show that one percent rise in multilateral aid in previous time period, raises the non-DAC aid jointly in current time period by 0.67 percent on average.

The War on Terror (WoT) period is found significantly explaining the flows of non-DAC aid. There exists a negative relationship between the WoT and non-DAC Aid. The results show that during the WoT, the non-DAC aid significantly reduces by 14.98 percent. While this period effect when introduced with geopolitical potential, it raises the flows of non-DAC aid by 1.46 percent due to overwhelming role of geopolitical potential.

Nuclear Warheads presence also explains the flows of non-DAC aid significantly negative. The results show that if a country possesses nuclear warheads, it reduces non-DAC aid by 2.95 percent on average. While the geopolitical potential when interacted with nuclear weapon stockpiles, the results show that on average it raises aid by just 0.002 percent due to a strong effect of geopolitical potential. The presence of nuclear weapons and the rise in its inventory overall explains the negative impact on aid.

The domestic terrorism in terms of high casualty terrorists' bombings positively explains the flows of non-DAC aid. The results show that one more death due to terrorists' bombings raise the non-DAC flows by 0.002 percent. The same relationship exists during the WoT period with almost similar results.

Corruption has been found relatively weaker in explaining flows of aid from non-DAC sources. There exists a negative relationship between freedom from corruption and non-DAC aid. The results show that one rank higher in freedom from corruption leads to a 0.04 percent fall in non-DAC aid on average. It indicates that flows of aid from non-DAC donors might be given to countries with poor scores in freedom from corruption.

Table 13: Non-DAC Aid - Pooled OLS Estimations

	NON-DAC AID OLS MODELS					
	I	II	III	IV	V	VI
Dependent Variable: LNONDACAID						
Independent Variables	**Co-efficient**	**Co-efficient**	**Co-efficient**	**Co-efficient**	**Co-efficient**	**Co-efficient**
C	-22.17024***	-22.69215***	-20.52667***	-20.48623***	-20.6277***	-26.97007***
DDACAID	0.000454	0.000648	0.000524	0.000438	0.000439	0.000777*
LGDPGROWTH	-0.307063	-0.255073	-0.12489	-0.16216	-0.149729	-0.096836
LGNPPC$	0.742458**	0.624364*	0.501577	0.521126	0.55173	0.174918
POPULATION__TOTAL	-0.00000000605***	-0.00000000612***	-0.00000000565***	-0.0000000056***	-0.00000000557***	-0.00000000709***
LGPFAWTD	1.74625***	1.700716***	1.536109***	1.517234***	1.515689***	2.453226***
CURRENT_ACCOUNT_DUMMY	-1.382876***	-1.295307***	-1.25208***	-1.240765***	-1.213255***	-1.319647***
LMULTIAID	0.489142*					
LMULTIAID(-1)		0.707807***	0.701939***	0.692118**	0.690856**	0.668934**
DEMOC	0.234164	0.274955	0.275561	0.326556	0.326393	0.142171
POLITY2	-0.103276	-0.12545	-0.141134	-0.170658	-0.171289	-0.124422
HF_CORRUPTION	-0.05412**	-0.04325*	-0.039472*	-0.040131*	-0.040853*	-0.024259
HCTB_DEATHS(-1)			0.000997			
HCTB_DEATHS*WT				0.000981	0.001018	
LGPFAWTD*WT					-0.006199	
LGPFAWTD*NUCLEAR_WEAPON_STOCKPILE						0.002061***
NUCLEAR_WARHEADS						-2.886724***
WT						
HCTB_DEATHS						
Obs.	63	63	63	63	63	63
R-squared	0.7251	0.7431	0.7501	0.7501	0.7501	0.7941
Adjusted R-squared	0.6723	0.6937	0.6962	0.6962	0.6902	0.7446
F-Stats	13.7144	15.0410	13.9164	13.9140	12.5105	16.0610
Prob. (F-stats)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Durbin-Watson Stats	1.2205	1.3776	1.4151	1.4528	1.4632	1.4994
Jarque-Bera Stats	3.3455	3.2759	3.8546	4.4568	4.6185	3.9282
Prob. (JB)	0.1878	0.1944	0.1456	0.1078	0.0994	0.1403
Breusch-Pagan Test	8.9468	7.0232	6.9605	7.2462	7.5867	9.4568
Prob. (BP)	0.5372	0.7233	0.7292	0.6847	0.6691	0.4894
LGNPPC$= Log GNP Per Capita; LGPFATWD= Log of Geopolitical Potential Index (factor loadings weighted method); LTRADE = Log Trade (% of GDP); DEMOC = Democracy,						
HCTB_DEATHS = Number of Deaths from High Casualty Terrorist Bombings; LMULTIAID = Log of Multilateral Aid; HF_CORRUPTION = Freedom from Corruption; WT = War on Terror						

***, **, * represent the significance at 1%, 5%, and 10% levels respectively.

Table 13: Non-DAC Aid - Pooled OLS Estimations (continued)

	NON-DAC AID OLS METHOD				
	VII	VIII	IX	X	XI
Dependent Variable: LNONDACAID					
Independent Variables	**Co-efficient**	**Co-efficient**	**Co-efficient**	**Co-efficient**	**Co-efficient**
C	-26.56451***	-25.12665***	-26.73989***	-25.92686***	-26.26263***
DDACAID	0.000745*	0.000606	0.000759*	0.000195	0.000178
LGDPGROWTH	-0.140593	-0.285569	-0.121775	-0.120953	-0.097055
LGNPPC$	0.048773	0.365344	0.095391	0.464364	0.420885
POPULATION__TOTAL	-0.00000000716***	-0.00000000931***	-0.00000000711***	-0.00000000536***	-0.00000000547***
LGPFAWTD	2.4914***	2.201592***	2.479308***	2.345675***	2.41993***
CURRENT_ACCOUNT_DUMMY	-1.433675***	-1.402872***	-1.388882***	-1.36076***	-1.359397***
LMULTIAID					
LMULTIAID(-1)	0.657017**	0.609677**	0.662224**	0.444871*	0.412799
DEMOC	0.134529	0.3611	0.135199	0.115343	0.106806
POLITY2	-0.12197	-0.24994*	-0.121611	-0.135752	-0.132861
HF_CORRUPTION	-0.021529	-0.032907	-0.022491	-0.042996**	-0.040086*
HCTB_DEATHS(-1)					
HCTB_DEATHS*WT					0.002659***
LGPFAWTD*WT	0.024813	1.468485***			
LGPFAWTD*NUCLEAR_WEAPON_STOCKPILE	0.002025***	0.001354**	0.002046***		
NUCLEAR_WARHEADS	-2.994495***	-3.766758***	-2.943836***	-2.494244***	-2.611849***
WT		-14.9886***	0.155698		
HCTB_DEATHS				0.002569***	
Obs.	63	63	63	63	63
R-squared	0.7955	0.8285	0.7946	0.7875	0.7888
Adjusted R-squared	0.7412	0.7785	0.7401	0.7365	0.7381
F-Stats	14.6588	16.5624	14.5765	15.4411	15.5540
Prob. (F-stats)	0.0000	0.0000	0.0000	0.0000	0.0000
Durbin-Watson Stats	1.4784	1.8082	1.4837	1.7664	1.7617
Jarque-Bera Stats	4.0724	1.2409	4.0704	1.6528	1.7288
Prob. (JB)	0.1305	0.5378	0.1306	0.4376	0.4213
Breusch-Pagan Test	9.2247	8.3197	9.3121	10.3144	9.6566
Prob. (BP)	0.5109	0.5976	0.5028	0.4134	0.4711
LGNPPC$= Log GNP Per Capita; LGPFATWD= Log of Geopolitical Potential Index (factor loadings weighted method); LTRADE = Log Trade (% of GDP);					
HCTB_DEATHS = Number of Deaths from High Casualty Terrorist Bombings; LMULTIAID = Log of Multilateral Aid; HF_CORRUPTION = Freedom from Corruption;					
DEMOC = Democracy; WT = War on Terror					

***, **, * represent the significance at 1%, 5%, and 10% levels respectively.

4.3.2 Fixed Effect Models

The fixed effect estimations show the significance of per capita income, population, geopolitical potential, (negative) current account balance, trade openness, WoT period, nuclear warheads, DAC aid flows, and domestic terrorism during the War on Terror. While the economic growth, democracy, political stability, and freedom from corruption partially explain the flows of non-DAC aid (see Table 14).

The per capita income is found to have a strong positive relationship with non-DAC aid. The results show that if per capita income rises by 1 percent, then non-DAC aid increases by 2.2 percent on average *ceteris paribus*. It indicates a negative relationship with poverty. Though it is a weak measure of poverty since the data of poverty is missing for larger time in case of South Asia, therefore, one can simply relate the low levels of income with poverty (Collier and Dollar, 2002). The population significantly explains the non-DAC aid. The coefficient is again found negative in fixed effect estimations like pooled OLS method. If a population rises by 1 million, it reduces aid from non-DAC sources jointly by 0.025 percent on average.

The geopolitical potential index is found to have a negative relationship with non-DAC aid. This is again due to variation or heterogeneity in features like population, size, or value of geopolitical potential across countries. Here we find the negative intercept of Bangladesh, Nepal and Sri Lanka during fixed effect estimations of non-DAC aid whereas India and Pakistan appear with positive intercept. The countries with relatively higher geopolitical potential are having positive intercepts while rest others appear negative. Therefore, due to low value of geopolitical potential of three out of five countries with corresponding low levels of aid, the relationship is found negative but actually it induces positive relation with high value of geopolitical potential.

The current Account balance is having negative relationship with Non-DAC aid. The result shows that once currently faces negative current account balance, the non-DAC increases by 1.65 percent on average which indicates that donors respond to fiscal imbalances or recipients' needs.

Democracy, political stability, and freedom from corruption have been observed partially significant. The results show that on average as the democracy rises (one point on scale of 0 to 10), the non-DAC aid rises by 0.52 percent. Political stability is found to have a negative relationship with non-DAC aid. If political stability improves by one point, the non-DAC reduces by 0.32 percent on average. This indicates that countries relatively less politically stabled are given more weightage by non-DAC countries. Freedom from corruption, again, is observed partially significant with a negative relationship. If the freedom from corruption rises by one percentage point, then non-DAC aid falls by 0.05 percent on average. The countries with less freedom from corruption might have been given more aid, i.e., Bangladesh and Pakistan.

Trade openness has been observed quite significant, steadily appearing with a positive coefficient. The results show that if trade openness improves by one percentage point then non-DAC aid rises by 2.81 percent on average.

The War on Terror (WoT) period is also found positively significant in determining flows of non-DAC aid. During the WoT period, the non-DAC aid rises by 1 percent on average. The geopolitical potential during the WoT period is given more weightage. The results show that once WoT period interacted with geopolitical potential index, it raises aid from non-DAC sources by 0.10 percent on average.

The nuclear warheads presence represents a negative relationship with non-DAC aid, with partial significance. If a country possesses nuclear warheads, it reduces the aid from non-DAC countries jointly by 2.92 percent on average. The interaction of nuclear warheads presence with geopolitical potential of recipients has not been found significant while this interaction during the WoT period has been observed quite significant steadily in all models. The results depict that geopolitical potential in presence of nuclear warheads during the WoT period raises aid from non-DAC sources by 0.24 percent on average. Therefore, the WoT period is found quite important in determining the flows of aid from non-DAC countries.

The flows of aid from DAC countries also influence the aid from non-DAC sources. The results show that if the DAC aid rises by 1 percentage point, then non-DAC aid rises 1.20 percent whereas the multilateral aid has not been observed significant in determining flows of non-DAC aid. The domestic terrorism, in terms of high casualties from bombings, has not

been observed significant while during the WoT period, it is found quite significant. The results show that one casualty from terrorists' bombings during the WoT leads to a 0.0012 percent rise in non-DAC aid or hundred casualties from bombings during the WoT raises aid by 0.12 percent.

Table 14: Non-DAC Aid - Fixed Effects Estimations

	NON-DAC AID OLS FIXED EFFECT MODELS				
	I	II	III	IV	V
Dependent Variable: LNONDACAID					
Independent Variables	**Co-efficient**	**Co-efficient**	**Co-efficient**	**Co-efficient**	**Co-efficient**
C	50.01131**	49.76255**	67.21563**	63.9283**	-15.58954***
GDP_GROWTH____ANNUAL_	-0.128475*	-0.130718*	-0.123911*	-0.12233*	-0.160404**
LGNPPC$	2.544903***	2.54171***	2.507715***	2.518511***	2.205542***
POPULATION__TOTAL	-0.0000000239***	-0.0000000244***	-0.000000021***	-0.000000021***	-0.0000000339***
LGPFAWTD	-6.555192***	-6.521555***	-8.004956***	-7.74059***	
CURRENT_ACCOUNT_DUMMY	-1.477251***	-1.494073***	-1.550003***	-1.516552***	-1.562594***
DEMOC	0.299401	0.324001	0.214179	0.204481	0.564955**
POLITY2	-0.182038	-0.195274	-0.16002	-0.149817	-0.329415**
HF_CORRUPTION	-0.039144*	-0.039294*	-0.024111	-0.027068	-0.074231***
LTRADE	3.494344***	3.467492***	3.025778***	3.150862***	3.316142***
WT	0.879265**			1.14457**	
LGPFAWTD*WT		0.087253**	0.120497***		-0.038967
NUCLEAR_WARHEADS			-1.302653		
LGPFAWTD*NUCLEAR_WARHEADS				-0.08925	
LGPFAWTD*NUCLEAR_WARHEADS*WT					0.161425**
NUCLEAR_WEAPON_STOCKPILES					0.008266
HCTB_DEATHS					
HCTB_DEATHS*WT					
LDACAID					
LMULTIAID					
Obs.	64	64	64	64	64
R-squared	0.8496	0.8517	0.8575	0.8534	0.8635
Adjusted R-squared	0.8066	0.8093	0.8130	0.8076	0.8208
F-stats	19.7614	20.0962	19.2538	18.6290	20.2367
Prob. (F-stat)	0.0000	0.0000	0.0000	0.0000	0.0000
Durbin-Watson Stat	1.9304	1.9507	1.9088	1.8861	2.0026
Jarque-Bera Stats	4.8613	4.4024	4.0268	4.2346	0.7865
Prob. (JB)	0.0880	0.1106	0.1336	0.1204	0.6749
Breusch Pagan Stats	17.2533	17.0813	12.6969	13.9118	17.2388
Prob. (BP)	0.0689	0.0726	0.2411	0.1771	0.0692
LGNPPC$= Log GNP Per Capita; LGPFATWD= Log of Geopolitical Potential Index (factor loadings weighted method); LTRADE = Log Trade (% of GDP);					
HCTB_DEATHS = Number of Deaths from High Casualty Terrorist Bombings; LMULTIAID = Log of Multilateral Aid; DEMOC = Democracy;					
HF_CORRUPTION = Freedom from Corruption;WT = War on Terror					

***, **, * represent the significance at 1%, 5%, and 10% levels respectively.

Table 14: Non-DAC Aid - Fixed Effects Estimations (continued)

	NON-DAC AID OLS FIXED EFFECT MODELS				
	VI	VII	VIII	IX	X
Dependent Variable: LNONDACAID					
Independent Variables	**Co-efficient**	**Co-efficient**	**Co-efficient**	**Co-efficient**	**Co-efficient**
C	-13.47928***	-10.42088**	-10.31471**	-13.28397***	67.21563**
GDP_GROWTH____ANNUAL_	-0.168612**	-0.145316**	-0.140926**	-0.121938**	-0.123911*
LGNPPC$	2.186907***	1.869355***	1.847016***	1.419443***	2.507715***
POPULATION__TOTAL	-0.000000026***	-0.0000000222***	-0.0000000219***	-0.0000000306***	-0.000000021***
LGPFAWTD					-8.004956***
CURRENT_ACCOUNT_DUMMY	-1.751467***	-1.66965***	-1.652259***	-1.912904***	-1.550003***
DEMOC	0.550185**	0.489733**	0.486369**	0.352868	0.214179
POLITY2	-0.353154***	-0.348405***	-0.347724***	-0.270361**	-0.16002
HF_CORRUPTION	-0.062103***	-0.057753***	-0.055986***	-0.057215***	-0.024111
LTRADE	2.394671**	1.929082**	1.916811**	2.383253***	3.025778***
WT					
LGPFAWTD*WT	-0.044824	-0.038087	-0.040255	-0.021621	0.120497***
NUCLEAR_WARHEADS	-2.417611**	-2.985456***	-3.040465***	-3.266713***	-1.302653
LGPFAWTD*NUCLEAR_WARHEADS					
LGPFAWTD*NUCLEAR_WARHEADS*WT	0.293986***	0.265847***	0.264525***	0.239484***	
NUCLEAR_WEAPON_STOCKPILES					
HCTB_DEATHS		0.001171			
HCTB_DEATHS*WT			0.001242*		
LDACAID				1.203801***	
LMULTIAID				-0.143558	
Obs.	64	64	64	64	64
R-squared	0.8788	0.8855	0.8861	0.9029	0.8575
Adjusted R-squared	0.8410	0.8465	0.8473	0.8670	0.8130
F-stats	23.2094	22.7060	22.8444	25.1484	19.2538
Prob. (F-stat)	0.0000	0.0000	0.0000	0.0000	0.0000
Durbin-Watson Stat	2.0089	2.0446	2.0844	2.1353	1.9088
Jarque-Bera Stats	0.8642	2.4668	2.8338	4.1967	4.0268
Prob. (JB)	0.6491	0.2913	0.2425	0.1227	0.1336
Breusch Pagan Stats	9.5122	12.7402	12.5621	10.0699	12.6969
Prob. (BP)	0.4843	0.2386	0.2492	0.4344	0.2411
LGNPPC$= Log GNP Per Capita; LGPFATWD= Log of Geopolitical Potential Index (factor loadings weighted method); LTRADE = Log Trade (% of GDP);					
HCTB_DEATHS = Number of Deaths from High Casualty Terrorist Bombings; LMULTIAID = Log of Multilateral Aid; DEMOC = Democracy;					
HF_CORRUPTION = Freedom from Corruption;WT = War on Terror					

***, **, * represent the significance at 1%, 5%, and 10% levels respectively.

Comparison of Pooled OLS and Fixed Effect Models:

Generally, the F-statistics in all models of fixed effects are higher than pooled OLS models. Therefore, we prefer fixed effects models while comparing them.

4.3.3 Censored Tobit (Normal) Estimations

Since some countries are having negative values of aid from non-DAC sources, which represents that loan payments are higher than new flows of aid, therefore, the net flows appear negative. We apply censored (normal) Tobit method which takes into account the negative values by making them to zero, and considers the positive values for estimations. The censored Tobit estimations using the maximum likelihood approach display significance of population size, geopolitical potential, freedom from corruption, democracy, stocks of nuclear weapons, and domestic terrorism while the political stability is found partially important (see Table 15).

The coefficients derived from censored Tobit estimations using maximum likelihood approach can be differentiated from standard OLS methods in interpretation. The Tobit coefficient is not interpreted directly for determining the marginal impact of the regressor on the observed regressand unlike OLS because of the two main reasons: (a) the unit change in the value of a regressor affects the mean value of the regressand, and (b) the effect on the probability of observed regressand. The probability also depends on all the regressors in the model and their corresponding coefficients.

However, the results directly depict the marginal impact of the variables on latent variable, y_{it}*. The estimations allow us to compute the marginal impact of each regressor for all the observations considered in models but we focus on the earlier marginal effect of each regressor on latent variable rather observed regressand. Since the probability of latent variable ranges between 0 and 1, the ultimate impact of each variable in absolute manner will be smaller due to the interaction of a slope coefficient with a relatively lower value of probability. Our analysis will be based on the direct marginal effect of each independent variable on latent variable (y_{it}*) for the positive (or *desired*) non-DAC economic aid instead of y_{it} that covers full dataset, including non-positive values.

Population is observed as significantly influencing the non-DAC aid negatively. The results show that if a population rises by one million, the *desired* non-DAC aid reduces by almost 0.166 percent on average *ceteris paribus*.

The geopolitical potential is found to have a significantly positive relationship with non-DAC. The estimations depict that one percent rise in geopolitical potential leads to 27 percent rise in *desired* non-DAC aid on average. The impact of geopolitical on non-DAC aid has been observed much effective relative to other steadily significant regressors.

Freedom from corruption has been observed significantly influencing the non-DAC aid negatively. The results show that one percent rise in freedom from corruption, leads to almost 1.1 percent fall in *desired* non-DAC aid on average. This again indicates that countries with relatively higher corruption have been given more aid like Bangladesh and Pakistan.

Democracy also significantly influences the non-DAC aid. There exists a positive relationship between democracy and non-DAC aid. The estimations depict that one rank higher in democracy leads to 6.3 percent rise in *desired* aid from non-DAC sources on average. The countries which are more democratic or having relatively better democratic process are given higher aid by non-DAC donors.

The stocks of nuclear weapons also indicate their significantly positive role in influencing the aid by non-DAC donors. The model outcomes reveal that if the countries stock of nuclear weapons rises by 1, then the *desired* non-DAC aid rises by 0.94 percent on average. The geopolitical potential when interacted with nuclear weapons stocks shows that it raises aid by 0.65 percent on average from non-DAC donors.

Domestic terrorism has also been observed significantly positive in influencing the non-DAC aid. The results indicate that one casualty from terrorists' bombings leads to 0.09 percent rise in *desired* non-DAC aid while during the WoT period; it raises aid by 1 percent on average.

The political stability is found weaker in determining the flows of non-DAC aid. The few models indicate its partial significance with negative coefficient, actually displays a positive relationship due to a reciprocal form of this variable.

Table 15: Non-DAC Aid - Censored Tobit (Normal) Estimations

	NON-DAC AID CENSORED TOBIT ESTIMATIONS (MAXIMUM LIKELIHOOD)				
	I	II	III	IV	V
Dependent Variable: NON-DAC AID (Mil$)					
Independent Variables	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**
C	-403.8410**	-374.3623**	-343.2629**	-402.2966**	-379.671**
LDAC_AID(-1)	-4.493769	-5.681627	-6.646475		
1/LDAC_AID				299.8572*	305.6345*
1/LGNPPC$	-286.632	-369.8506	-401.0068		
LGNPPC$(-1)				10.64065	10.8832
POPULATION__TOTAL	-0.000000192***	-0.000000186***	-0.000000182***	-0.000000176***	-0.000000166***
LGPORIG	39.27031***	36.54256***	34.29076***	30.41641***	27.99186**
HF_CORRUPTION	-1.251677**	-1.199958**	-1.188407**	-0.951736*	-0.954285*
TRADE_____OF_GDP_	-0.070743				
1/TRADE__OF_GDP_					
LTRADE				-22.28628	-21.11949
1/LTRADE		118.2535	146.3258		
LTRADE(-1)					
MULTILATERAL_AID_TOTAL__	-0.001751	-0.003483			
CURRENT_ACCOUNT_DUMMY	-4.695072	-4.418583			
CURRENT_ACCOUNT_DUMMY(-1)			-8.209728		
CURRENT_ACCOUNT_OF_GDP					
CURRENT_ACCOUNT_OF_GDP(-1)				-2.239678	-2.27679*
LGPORIG*NUCLEAR_WEAPON_STOCKPILE	0.079419***	0.080512***	0.081656***	0.082963***	
DEMOC	8.927691	5.903604**	6.031342**	6.289684**	6.364045**
POLITY2	-2.13825				
1/POLITY2		-20.87797	-26.18123	-46.47288	-50.33606
NUCLEAR_WEAPON_STOCKPILE					1.244399***
WT					
LGPORIG*WT					
HCTB_DEATHS					
HCTB_DEATHS*WT					
SCALE:C	37.2515	37.23088	37.14222	36.31149	35.81903
Obs.	99	99	99	99	99
LGNPPC$= Log GNP Per Capita; LGPORIG= Log of Geopolitical Potential Index (factor variance weighted method of original data);					
HCTB_DEATHS = Number of Deaths from High Casualty Terrorist Bombings; LMULTIAID = Log of Multilateral Aid; DEMOC = Democracy;					
LTRADE = Log Trade (% of GDP); HF_CORRUPTION = Freedom from Corruption;WT = War on Terror					

***, **, * represent the significance at 1%, 5%, and 10% levels respectively.

Table 15: Non-DAC Aid - Censored Tobit (Normal) Estimations (continued)

	NON-DAC AID CENSORED TOBIT ESTIMATIONS (MAXIMUM LIKELIHOOD)				
	VI	VII	VIII	IX	X
Dependent Variable: NON-DAC AID (Mil$)					
Independent Variables	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**
C	-372.8800**	-356.7847**	-354.4971**	-362.4374**	-372.1713**
LDAC_AID(-1)					
1/LDAC_AID	297.2633*	329.2545**	326.1195**	320.8998**	319.9408**
LGNPPC$	6.312985	15.21997	13.87167	12.1175	12.11062
POPULATION__TOTAL	-0.00000017***	-0.000000129***	-0.000000131***	-0.000000134***	-0.000000137***
LGPORIG	29.48217***	21.33336*	21.82924**	23.02165**	23.9381**
HF_CORRUPTION	-0.827955	-1.228189**	-1.18735**	-1.041738**	-1.044157**
TRADE____OF_GDP_					
1/TRADE__OF_GDP_					
LTRADE	-22.21439	-11.01983	-11.65426	-11.16919	-11.40714
1/LTRADE					
LTRADE(-1)					
MULTILATERAL_AID_TOTAL__					
CURRENT_ACCOUNT_DUMMY					
CURRENT_ACCOUNT_DUMMY(-1)					
CURRENT_ACCOUNT_OF_GDP					
CURRENT_ACCOUNT_OF_GDP(-1)	-2.73808*	-1.727169	-1.892247	-2.002512	-1.963151
LGPORIG*NUCLEAR_WEAPON_STOCKPILE					0.046545***
DEMOC	6.412005**	6.122017**	6.171919**	6.238209**	6.197779**
POLITY2					
1/POLITY2	-45.64434	-83.99486*	-82.60143*	-82.43745*	-82.40418*
NUCLEAR_WEAPON_STOCKPILE	1.221353***	0.760741***	0.752635***	0.725233***	
WT	6.320397				
LGPORIG*WT		-0.186843			
HCTB_DEATHS		0.099215***	0.098058***		
HCTB_DEATHS*WT				0.099987***	0.105936***
SCALE:C	35.78768	33.86462	33.87269	33.80271	33.93793
Obs.	99	99	99	99	99
LGNPPC$= Log GNP Per Capita; LGPORIG= Log of Geopolitical Potential Index (factor variance weighted method of original data);					
HCTB_DEATHS = Number of Deaths from High Casualty Terrorist Bombings; LMULTIAID = Log of Multilateral Aid; DEMOC = Democracy;					
LTRADE = Log Trade (% of GDP); HF_CORRUPTION = Freedom from Corruption;WT = War on Terror					

***, **, * represent the significance at 1%, 5%, and 10% levels respectively.

4.4 Multilateral Economic Aid

For multilateral aid, we applied both pooled OLS and fixed effect estimation techniques based on homogenous and heterogeneous sample assumptions respectively. To strengthen our analysis and validate our results, we estimated couple of equations in either methodological techniques using variety of variables and their interactive forms to observe their individual and interactive relationship and effects on disbursement of multilateral aid.

4.4.1 Pooled OLS Models

The ordinary least square estimations show that geopolitical potential, DAC bilateral aid, political stability, democracy, economic growth, population, and nuclear weapon stockpiles significantly determine multilateral aid whereas the (negative) current account balance, per capita income, corruption, trade openness, and terrorism in recipients have been found insignificant (see Table 16).

The geopolitical potential index has been steadily found significantly positive in determining flows of multilateral sources of aid. The results show that one percent rise in geopolitical potential leads to a 0.75 percent rise in multilateral aid on average *ceteris paribus*. But the effect of geopolitical potential of recipients on multilateral aid during the War on Terror (WoT) has been found less strong, which depicts that the multilateral agencies have not given much attention to geopolitical potential during the WoT compared to overall time span or inter-War period.

DAC aid significantly derives the aid from multilateral sources with a positive relationship. On average, the results show that economic aid from multilateral sources jointly rises by 0.70 percent if DAC aid rises by 1 percentage point.

Political stability has also been observed significant. The results show that there is a positive relationship between political stability and multilateral aid. On average, one point rise in political stability level (ranging between -10 to +10) can raise multilateral aid by 0.18 percent.

Similarly, democracy has been found significantly negative in relationship with multilateral aid. The results indicate that one point lower in democracy level can raise multilateral aid by 0.30 percent on average. It indicates that lower level of democracy attracts more aid from multilateral agencies or they may require more aid for progress in democratic regimes to keep it stabled. On other hand, high ranks of democracy may require less funds or gain less attraction due to strong public opinion, accountability, and steady electoral process.

Nuclear weapon stockpiles have also been observed significant with a negative relationship. If the country's stockpile increases by 1 more nuclear weapon then the multilateral aid reduces by 0.05 percent. The nuclear weapon once interacted with geopolitical potential during War on terror, also provides negative coefficient which means it reduces country's potential to receive aid from multilateral sources rather further raising it.

Population is found to have a significantly negative relationship with multilateral aid. On average, if the population increases by 1 million, it reduces multilateral aid by 0.0013 percent.

The multilateral aid does not account the (negative) current account balance of economies which shows the demand for funds by recipients. Similarly, the domestic terrorism in recipients by bomb blasts does not influence aid from multilateral agencies.

Table 16: Multilateral Aid - Pooled OLS Estimations

	MULTILATERAL AID OLS METHOD			
	I	II	III	IV
Dependent Variable: LMULTIAID				
Independent Variables	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**
C	-6.594407**	-6.673342**	-7.355982**	-7.406583**
CURRENT_ACCOUNT_DUMMY	0.065427	0.018641	0.06157	
CURRENT_ACCOUNT_DUMMY(-1)				0.119868
LDACAID	0.709932***	0.705731***	0.69204***	0.707003***
LTRADE	0.062097	-0.130987	0.063061	0.071069
1/LTRADE				
DEMOC	-0.285798***	-0.27898***	-0.307131***	-0.313759***
POLITY2	0.178587***	0.169828***	0.186775***	0.195127***
LGDPGROWTH	0.228966**	0.212143**	0.225923**	0.182232*
1/LGNPPC$	8.031573	8.174007	9.563016	8.652022
LGPFAWTD	0.692864***	0.77887***	0.75843***	0.773688***
HF_CORRUPTION	-0.012338	-0.009435	-0.010563	-0.01082
LGPFAWTD*WT	0.035323**	0.031328**	0.038216**	0.03618**
LGPFAWTD*NUCLEAR_WEAPON_STOCKPILE*WT	-0.001074***	0.0029*	-0.000986***	-0.000892***
POPULATION__TOTAL	-0.00000000123***	-0.00000000163***	-0.00000000129***	-0.0000000014***
NUCLEAR_WEAPON_STOCKPILE		-0.049389***		
NUCLEAR_WARHEADS			-0.181142	-0.140817
HCTB_DEATHS*WT				-0.000342
HCTB_DEATHS				
HCTB_INCIDENTS_PER_YEAR				
Obs.	98	98	98	98
R-squared	0.7439	0.7640	0.7456	0.7508
Adjusted R-squared	0.7078	0.7274	0.7063	0.7088
F-stats	20.5750	20.9095	18.9397	17.8644
Prob. (F-stats)	0.0000	0.0000	0.0000	0.0000
Durbin-Watson stat	1.5345	1.6560	1.5320	1.5470
Jarque-Bera stats	2.2396	5.8706	2.8580	3.5729
Prob.(JB)	0.3264	0.0532	0.2396	0.1676
Breusch Pagan stats	14.2824	12.2662	14.7296	13.5573
Prob. (BP)	0.1605	0.2676	0.1422	0.1942
LGNPPC$= Log GNP Per Capita; LGPFATWD= Log of Geopolitical Potential Index (factor loadings weighted method); DEMOC = Democracy;				
HCTB_DEATHS = Number of Deaths from High Casualty Terrorist Bombings; LMULTIAID = Log of Multilateral Aid; LTRADE = Log Trade (% of GDP);				
HF_CORRUPTION = Freedom from Corruption; WT = War on Terror.				

***, **, * represent the significance at 1%, 5%, and 10% levels respectively.

Table 16: Multilateral Aid - Pooled OLS Estimations (continued)

	MULTILATERAL AID OLS METHOD			
	V	VI	VII	VIII
Dependent Variable: LMULTIAID				
Independent Variables	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**
C	-7.573643**	-7.307444**	-7.247901**	-5.910958***
CURRENT_ACCOUNT_DUMMY				
CURRENT_ACCOUNT_DUMMY(-1)	0.117812	0.113964	0.135361	0.142049
LDACAID	0.710391***	0.698733***	0.689961***	0.724942***
LTRADE	0.068876	0.027988	0.095097	
1/LTRADE				-2.056006
DEMOC	-0.314649***	-0.31059***	-0.310824***	-0.296077***
POLITY2	0.196432***	0.195291***	0.189397***	0.184752***
LGDPGROWTH	0.178216*	0.181198*	0.196784*	0.196904**
1/LGNPPC$	8.937563	8.556836	8.38631	7.302081
LGPFAWTD	0.784271***	0.785121***	0.762201***	0.714895***
HF_CORRUPTION	-0.010049	-0.009933	-0.011296	-0.013234*
LGPFAWTD*WT	0.03592**	0.035728**	0.034377**	0.031038**
LGPFAWTD*NUCLEAR_WEAPON_STOCKPILE*WT	-0.000868***	-0.000818***	-0.000983***	-0.001096***
POPULATION__TOTAL	-0.00000000145***	-0.0000000015***	-0.00000000127***	-0.00000000123***
NUCLEAR_WEAPON_STOCKPILE				
NUCLEAR_WARHEADS	-0.144176	-0.138269	-0.173307	
HCTB_DEATHS*WT				
HCTB_DEATHS	-0.000417			
HCTB_INCIDENTS_PER_YEAR		-0.018548		
Obs.	98	98	98	98
R-squared	0.7522	0.7534	0.7483	0.7473
Adjusted R-squared	0.7105	0.7118	0.7093	0.7116
F-stats	17.9985	18.1129	19.2024	20.9434
Prob. (F-stats)	0.0000	0.0000	0.0000	0.0000
Durbin-Watson stat	1.5603	1.5972	1.5398	1.5513
Jarque-Bera stats	2.8793	1.9941	3.6135	2.8436
Prob.(JB)	0.2370	0.3690	0.1642	0.2413
Breusch Pagan stats	13.1563	12.9957	14.8802	14.7032
Prob. (BP)	0.2151	0.2239	0.1365	0.1433
LGNPPC$= Log GNP Per Capita; LGPFATWD= Log of Geopolitical Potential Index (factor loadings weighted method); DEMOC = Democracy;				
HCTB_DEATHS = Number of Deaths from High Casualty Terrorist Bombings; LMULTIAID = Log of Multilateral Aid; LTRADE = Log Trade (% of GDP);				
HF_CORRUPTION = Freedom from Corruption; WT = War on Terror.				

***, **, * represent the significance at 1%, 5%, and 10% levels respectively.

4.4.2 Fixed Effects Models

To allow the heterogeneity in the recipients of South Asia, we also applied fixed effects estimations. The fixed effects models of multilateral aid report the significance of aid from DAC countries, trade openness, democracy, political stability, per capita income, geopolitical potential, economic growth, population, War on Terror period, nuclear weapons stockpiles, and the US alliance while corruption, domestic terrorism, and negative current account balance have been observed insignificant (see Table 17).

The DAC aid significantly influences aid disbursed by multilateral sources. The results show that one percent rise in DAC bilateral aid raises multilateral aid by 0.75 percent on average *ceteris paribus*.

Trade Openness has been found significant in determining flows of multilateral aid. The relationship of trade openness is found polynomial. Firstly, the trade openness positively influences multilateral aid but later starts yielding negative returns in terms of attracting multilateral aid. The results report that one percent rise in trade openness leads to 17 percent rise initially and then after a certain level, it reduces multilateral aid by 2 percent on average.

Like pooled OLS, the democracy has been found significantly negative in relation with multilateral aid. The results show that one lower point in democracy levels can lead to a 0.35 percent rise in multilateral aid on average. It indicates that multilateral agencies prefer countries not having well-structured democracy or may support relatively weaker democracies to keep them functional.

Multilateral agencies significantly take political stability into account. The results show that one higher rank in political stability leads to 0.20 percent rise in multilateral aid flows on average.

The geopolitical potential index is found significantly influencing the multilateral aid. The relationship has been observed positive. The results show that one percent rise in country's geopolitical potential leads to a 2.2 percent rise in flows of multilateral aid on average. The geopolitical potential has been observed significantly influencing in models after trade openness in terms of its impact on multilateral aid.

The relationship between per capita income and multilateral aid is found negative which indicates that low income (or poor) countries are relatively preferred by multilateral agencies. The results depict that one percent rise in per capita income reduces multilateral aid by 0.75 percent on average.

The flows of multilateral aid have been found partially influenced by economic growth as well. The models report that on average, one percentage rise in economic growth rates leads to 0.18 percent rise in multilateral aid. The relationship between economic growth and multilateral aid has been observed relatively weaker than earlier variables.

Population is also found partially important in influencing the aid but negatively. The fixed effects estimations show that one million rise in population reduces multilateral aid marginally by 0.005 percent on average.

The War on Terror (WoT) period is also observed significantly positive in influencing the multilateral aid. The fixed effect estimations report that during the WoT period, the multilateral flows significantly rise by 0.40 percent on average. The geopolitical potential index once interacted with war on terror, significantly influences multilateral aid by 0.03 percent on average. But the effect of geopolitical potential of countries is not that loud during WoT compared to its influence observed separately for the overall time span.

Nuclear weapons stockpiles have been found significantly influencing the multilateral flows of aid. There exists a negative relationship between the multilateral aid and nuclear weapon stockpiles. If a country adds one more nuclear weapons, it significantly reduces multilateral aid by 0.03 percent on average but during WoT its effect is lesser with 0.009 percent. The nuclear weapons stock when interacted with geopolitical potential marginally reduces the multilateral flows of aid by 0.001 percent (almost same effect during the WoT as well) which indicates its subtractive nature for receiving flows of aid rather additive.

US alliance is another important factor significantly determines multilateral aid. If a country is a US ally, then it receives 1.05 percent more aid than a country not in alliance with US. The same effect has been observed during the WoT period.

Table 17: Multilateral Aid - Fixed Effects Estimations

	MULTILATERAL AID OLS FIXED EFFECT MODELS				
	I	II	III	IV	V
Dependent Variable: LMULTIAID					
Independent Variables	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**
C	-60.58499***	-35.49145**	-40.60037**	-53.34186***	-51.03999***
CURRENT_ACCOUNT_DUMMY	0.012132	-0.165504	-0.188783	-0.072356	0.009543
CURRENT_ACCOUNT_DUMMY(-1)					
LDACAID	0.61501***	0.783917***	0.787862***	0.824208***	0.808303***
LTRADE	21.23228***	11.65357*	13.18454**	17.23925***	17.42838***
LTRADE^2	-2.853138***	-1.594006*	-1.806035**	-2.357837***	-2.36368***
DEMOC	-0.336286***	-0.337037***	-0.339919***	-0.349783***	-0.355362***
POLITY2	0.196268***	0.203997***	0.201865***	0.202329***	0.210695***
LGDPGROWTH	0.201675**	0.178912*	0.176599*	0.186233*	0.195059*
LGNPPC$	-0.858195**	-0.718615**	-0.760036**	-0.783494**	-0.762668**
LGPFAWTD	2.872015**	1.887344*	2.192427*	2.712605**	2.404952**
HF_CORRUPTION					
HF_CORRUPTION(-1)	-0.005997	-0.005685	-0.003285	-0.003362	-0.006745
POPULATION__TOTAL	-0.00000000564***	5.62E-10	-2.01E-09	-2.82E-09	-1.34E-09
LGPFAWTD*WT		0.034611**	0.030884*		
LGPFAWTD*NUCLEAR_WEAPON_STOCKPILE		-0.001201***			
LGPFAWTD*NUCLEAR_WEAPON_STOCKPILE*WT			0.002122	0.002918*	
LGPFAWTD*NUCLEAR_WARHEADS					
NUCLEAR_WEAPON_STOCKPILE			-0.038305*	-0.045074**	
NUCLEAR_WEAPON_STOCKPILE*WT					-0.00912**
HCTB_DEATHS					
WT					
HCTB_DEATHS*WT					
US_ALLY					
US_ALLY*WT					
US_ALLY*HCTB_DEATHS*WT					
Obs.	93	93	93	93	93
R-squared	0.7579	0.7892	0.7947	0.7855	0.7723
Adjusted R-squared	0.7108	0.7414	0.7448	0.7369	0.7244
F-stats	16.0699	16.5085	15.9140	16.1524	16.1108
Prob. (F-stat)	0.0000	0.0000	0.0000	0.0000	0.0000
Durbin-Watson stats	1.5804	1.8292	1.8711	1.7327	1.6763
Jarque-Bera stats	0.7353	0.8846	1.0992	1.9438	1.5914
Prob. (JB)	0.6924	0.6426	0.5772	0.3784	0.4512
Breusch-Pagan stats	14.8245	14.1340	13.2929	13.9183	15.2934
Prob. (BP)	0.1386	0.1670	0.2078	0.1768	0.1217
LGNPPC$= Log GNP Per Capita; LGPFATWD= Log of Geopolitical Potential Index (factor loadings weighted method); HF_CORRUPTION = Freedom from Corruption;					
HCTB_DEATHS = Number of Deaths from High Casualty Terrorist Bombings; LMULTIAID = Log of Multilateral Aid; LTRADE = Log Trade (% of GDP);					
DEMOC = Democracy; WT = War on Terror.					

***, **, * represent the significance at 1%, 5%, and 10% levels respectively.

Table 17: Multilateral Aid - Fixed Effects Estimations (continued)

	MULTILATERAL AID OLS FIXED EFFECT MODELS					
	VI	VII	VIII	IX	X	XI
Dependent Variable: LMULTIAID						
Independent Variables	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**
C	-51.39915***	-38.2898**	-37.47829**	-37.24369**	-47.29373***	-47.93983***
CURRENT_ACCOUNT_DUMMY	-0.129737	-0.153349	-0.144448	-0.144091	-0.095802	-0.095157
CURRENT_ACCOUNT_DUMMY(-1)						
LDACAID	0.665453***	0.822742***	0.773861***	0.773298***	0.724035***	0.727089***
LTRADE	18.76258***	13.56758**	13.39666**	13.38527**	15.01335**	15.17838**
LTRADE^2	-2.508291***	-1.859607**	-1.81087**	-1.810988**	-2.041856**	-2.063574**
DEMOC	-0.361068***	-0.391464***	-0.361742***	-0.361673***	-0.211615*	-0.219831*
POLITY2	0.219233***	0.230996***	0.220859***	0.220419***	0.151775**	0.156409**
LGDPGROWTH	0.159488	0.194684*	0.175609*	0.178514*	0.146747	0.141697
LGNPPC$	-0.901905***	-0.872365***	-0.787444**	-0.786032**	-0.576647*	-0.588317*
LGPFAWTD	2.438593**	1.90652*	1.834487	1.810705	2.260519**	2.312638**
HF_CORRUPTION						
HF_CORRUPTION(-1)	-0.004903	-0.003321	-0.005852	-0.005814	-0.010577	-0.010345
POPULATION__TOTAL	-0.00000000612***	7.88E-10	-7.15E-10	-5.13E-10	3.23E-09	2.66E-09
LGPFAWTD*WT						
LGPFAWTD*NUCLEAR_WEAPON_STOCKPILE						
LGPFAWTD*NUCLEAR_WEAPON_STOCKPILE*WT			-0.000901**	-0.000931**	-0.001617***	-0.001523***
LGPFAWTD*NUCLEAR_WARHEADS		-0.021394				
NUCLEAR_WEAPON_STOCKPILE		-0.012757**				
NUCLEAR_WEAPON_STOCKPILE*WT						
HCTB_DEATHS	-0.000644*	-0.0000278	-0.000227			
WT	0.331449*	0.407442**	0.406193**	0.409023**		
HCTB_DEATHS*WT				-0.000179	-0.000167	
US_ALLY						1.05264***
US_ALLY*WT					1.065696***	
US_ALLY*HCTB_DEATHS*WT						-0.000276
Obs.	93	93	93	93	93	93
R-squared	0.7744	0.7937	0.7862	0.7859	0.7935	0.7940
Adjusted R-squared	0.7232	0.7380	0.7342	0.7338	0.7433	0.7439
F-stats	15.1373	14.7797	15.1171	15.0823	15.7950	15.8439
Prob. (F-stat)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Durbin-Watson stats	1.7499	1.8593	1.8276	1.8209	1.8392	1.8487
Jarque-Bera stats	0.1510	0.5358	0.2726	0.3544	2.4349	2.6441
Prob. (JB)	0.9273	0.7651	0.8726	0.8376	0.2960	0.2667
Breusch-Pagan stats	12.8372	14.1340	13.9048	14.0851	10.9585	11.1385
Prob. (BP)	0.2329	0.1670	0.1774	0.1687	0.3608	0.3468
LGNPPC$= Log GNP Per Capita; LGPFATWD= Log of Geopolitical Potential Index (factor loadings weighted method); HF_CORRUPTION = Freedom from Corruption;						
HCTB_DEATHS = Number of Deaths from High Casualty Terrorist Bombings; LMULTIAID = Log of Multilateral Aid; LTRADE = Log Trade (% of GDP);						
DEMOC = Democracy; WT = War on Terror.						

***, **, * represent the significance at 1%, 5%, and 10% levels respectively.

Comparison of Pooled OLS and Fixed Effect Models:

Using the F-statistics as the yardstick to compare the models, the pooled OLS estimations have been found better in explanation. Therefore, we prefer our pooled OLS method of estimations for multilateral aid.

4.4.3 Relation between the Bilateral Economic Aid and Multilateral Aid

The vector autoregressive (VAR) model and Granger casuality test confirm that only bilateral aid from DAC donors is influenced by multilateral aid. There is actually no particular influence is being found both for bilateral aid from non-DAC donors and multilateral aid from other sources (see Section IV of Appendix).

CHATPER V

ANALYSIS

The geopolitical interests of donors have been observed significantly stronger in many studies especially during the Cold-War period. The literature also discerns the diminishing role of geopolitical interests of donors after the end of Cold War. The recent studies have witnessed the re-emergence of the donors' geopolitical interests during the War on Terror (WoT).

Out study hypothesizes that it is the geopolitical potential of recipients that attract both the military assistance and economic aid especially from the DAC bilateral donors during the post-Cold War period, which further can be distinguished between the inter-war and the WoT periods. We further confirm the direction of influence of both types of assistance. Our results conclude that it's the bilateral economic assistance from the DAC donors that is influenced by the US military assistance to South Asian economies. The literature suggests that this directional relation captures the effect of geopolitical interests of donors influencing the economic assistance. Our study focuses the role of geopolitical potential of recipients that influences the geopolitical interests of donors both in form of military assistance as well as in disbursement of economic assistance from DAC and non-DAC donors and multilateral agencies.

The geopolitical potential index, generally, has been observed significantly positive in influencing the US military aid as well as the economic aid both from bilateral (DAC and Non-DAC donors) and multilateral sources. The relationship between geopolitical potential of recipients and the US military aid as well as with bilateral economic aid from DAC donors is found polynomial which indicates that initially geopolitical potential of recipients attracts the US military aid and DAC donors as its value starts rising but eventually when a country becomes a powerful player or giant in the region, the DAC aid starts diminishing.

Moreover, it suggests that when the natural and man-made resources of a recipient begins growing, and it drives to acquire conventional military capabilities given the suitable foreign defence policy and voting in favour of recipients in the United Nations (UN), the US military aid as well as bilateral economic aid from DAC donors responds strongly positive. Later, when a country reaches at adequate level of natural and man-made resources, apprehends efficient advantage of natural resources and geography, expands military size, and realizes

conventional modern military capabilities, both the US military aid and bilateral economic aid from DAC donors start diminishing. We also observed a strong coefficient value of bilateral aid from DAC donors with respect to geopolitical potential than the US military assistance. An important underlying reason could be the strong effect of the US military assistance on further development and modernisation of military capabilities, which is a component of geopolitical potential. Though this is beyond the scope of this study but seems important in explaining the dynamics of geopolitical potential. A further research can be conducted on military capabilities and its dynamics with respect to geopolitical potential since there is no such empirical study has been carried out yet to explain this behaviour in discipline of strategic aid.

Hence, these developments along with infrastructural improvement nurtures the geopolitical potential to further heights which induces less scope of aid after a certain level, i.e. India. These couple of features or few of them once starts rising consistently, can be held responsible for leaving the geopolitical potential into a phase of diminishing returns of both the military assistance from the US and the overall economic aid from DAC donors.

Applying this phenomenon in South Asia, we find that India is a leading player in the region as its geopolitical potential is far higher than any country followed by Pakistan (five times lesser than India), Bangladesh, Sri Lanka, and Nepal. Therefore, India has not been given much aid by DAC donors on average from 1991 till 2013 with respect to its greater geopolitical potential while Pakistan received 26 percent less aid than India from DAC donors compared to its five times lesser value of geopolitical potential. Similarly, Bangladesh received 17 percent lesser aid on average from DAC donors than Pakistan compared to its 3.3 times lesser value of geopolitical potential to Pakistan. Further, Nepal received just five percent less aid than Sri Lanka compared to its forty percent less value of geopolitical potential to Sri Lanka.

India seems progressing in almost all components of the geopolitical potential index. Overall, its geopolitical potential has almost risen by 65% since 1991 compared to Bangladesh (43%), Pakistan (32%), and Sri Lanka (49%). Nepal being very small has shown some performance in raising its geopolitical potential by 73 percent in mean time. Indian military size has expanded by more than 2.25 times during our study period (from 1990 till 2013). On technological front, it has equipped itself with modern conventional capabilities along with strategic modernization of nuclear weapons. The recent leap in space has made it most

distinguishable in the developing world. Since, its economy size has grown by 6.27 times (627 percent) while its military expenditures have not witnessed substantial reduction, i.e., dropping from 2.9 percent to 2.4 percent of GDP. In absolute terms, the military expenditures have grown much higher which has contributed in modernization of its military resources by relying both on domestic resources and imports, to strengthen its hegemony in the region.

India has also raised its production of natural resources notably coal and petroleum. Coal and petroleum productions have experienced growth of 256 percent and 53 percent respectively in our study period. It has also shown performance in taking advantage from the natural resources, i.e., electricity production has grown up 332 percent. Importantly, we are just discussing the variables which we considered in our factor analysis based upon common features. Apart from these features, India is important for the production of the critical elements due to its wide-ranging natural resources like Copper, Iron, Uranium, etc. India also doubled its Uranium production in mean time. Similarly, it also produces gold which is not found in rest of South Asia.

The infrastructure has been found improved during this course like sea ports and air ports have increased in numbers. Further, roadways and railroads lengths have also witnessed growth. The roadways length has become more than doubled. On diplomatic fronts, India carries a higher rank in political globalization. For twice, it became the member of United Nations Security Council (UNSC). The large country with a large population has also performed well in reducing poverty and raising its human development score by 36 percent in last two decades. In South Asia, India is ranked 3rd in human development index (HDI) after Maldives and Sri Lanka. Therefore, when a country reaches at a stage of geopolitical potential where it starts taking advantage of natural and man-made resources efficiently and makes progress on other fronts, it shows the donors its powerful angle due to substantially higher geopolitical potential more than its deprivation that requires aid. While the countries with relatively less geopolitical potential but making some progress, and still carrying much poverty and deprivation, they attract donors more due to their mixed pattern of geopolitical potential and deprivation of development.

Pakistan is still in a phase of attracting donors due to its mixed pattern of geopolitical potential and poverty or deprivation of development. Though it has made progress in making its military capabilities on modern footings, achieved strategic nuclear capabilities due to regional strategic power-play and threats but on other fronts, it has not shown much

performance on utilization of its natural resources. The basic infrastructure development and poverty reduction are still main challenges. Of course, the external factors would definitely have played their roles like military coups, political instability, corruption, terrorism, etc. The coal production has just witnessed a rise of 6 percent from 1991 till 2013. The electricity production has increased by 2.34 times (234 percent) compared to 3.32 time increment in India. Since 2008, Pakistan has been facing historically higher power outages. Though it also possesses some of the critical elements, transmission channels like supply pipelines of oil and gas, and water channels as well but so far has not succeeded much in better utilization of its resources. The railroad track has further seen reduction while roadways length rises by just 47 percent in mean time. Similarly, there is no as such advancement in air ports and sea ports. Recently, it has made Gawadar port functional under Sino-Pak trade and strategic agreements. Compared to very large India, Pakistan has not shown much performance in reducing poverty in our study period. Presently, its Human Development Index (HDI) score is lowest in South Asia. Therefore, the mixed patterns of geopolitical potential and poverty still keeps the economy in phase of increasing patterns of aid disbursement. Once, the geopolitical potential will be overwhelming and poverty picture starts becoming blurred, then it will not be attracting donors much given its better performance in other features of geopolitical potential. Then, the disbursement of aid could easily be distinguishable as purely for developmental reasons. That stage may also reflect the transition of a recipient to a donor.

The nuclear warheads presence and stockpiles have not been found significant in case of DAC donors in our pooled OLS models but fixed effect models indicate the positive relation between warheads presence and DAC aid. Interestingly, the geopolitical potential has not been found significant during the WoT period. This indicates that donors paid more attention to their own geopolitical interests rather responding to recipients' potential. We captured the donors' own geopolitical interests by the US alliance which has been found significant for the WoT period. Further, both the pooled OLS and fixed effect models indicate that even if the recipient country either possesses nuclear warheads or has a policy of growing stock of nuclear weapons, being US ally (during the WoT), it helps to receive aid from DAC donors. Hence, the US alliance is an important factor determining the donors' interests since most of the key DAC donors are also in alliance with US under NATO.

The role of key DAC donors is also found important in influencing the flows of multilateral aid. The US alliance is again found much important and positively affects the multilateral aid

during the WoT period. The nuclear weapons' stockpiles which alone negatively affects the multilateral aid when interacted with the US alliance (during the WoT period) brings positive changes in flows of multilateral aid due to strong influence of geopolitical interests of DAC donors which contribute into the funding channels of multilateral agencies.

The economic interests of DAC donors measured by their share in recipients' imports have not been found important in influencing aid. In fact, significantly opposite relation has been observed in disbursement of aid by DAC donors. The results indicate that if the share of few main DAC donors (Germany, France, Japan, UK and US) in imports of South Asian recipients increase, aid from DAC donors reduces.

Similarly, the aid from non-DAC donors is also found to be positively influenced by the geopolitical potential of South Asian recipients. Both the pooled OLS and censored Tobit models indicate a strong positive relationship between them. The WoT period is found strongly negative in case of non-DAC aid which indicates that it negatively influences non-DAC aid whereas for DAC aid, this period effect has not been found playing any significant role other than when interacted with US alliance. The geopolitical potential is found so strong when it is interacted with either nuclear weapon stockpiles or WoT or both of them, it significantly approves the positive relationship. The pooled OLS and fixed effect models indicate a negative relationship between non-DAC aid and presence of nuclear weapons alone but once interacted with geopolitical potential it plays a positive role in influencing the non-DAC aid due to overwhelming effect of geopolitical potential. Tobit estimations indicate that growing stock of nuclear weapons positively affects the aid from non-DAC donors.

Like DAC aid, we again find something interesting in patters of non-DAC aid to South Asian economies. Generally, there is a positive relationship between geopolitical potential of the South Asian recipients and non-DAC aid with some outlier as well, i.e. India. The average aid received by India from non-DAC donors during the period 1991 to 2013, is found negative 7.5 million dollars which means the fresh flows of aid from non-DAC donors are lesser than the payments of existing loans. The geopolitical potential of India is relatively much larger than many of the non-DAC donors, which explains the reduction in aid due to its greater geopolitical potential like a polynomial relation with DAC aid, diminishing after reaching a certain height. The relative capacity of non-DAC donors is quite lesser compared to DAC donors, therefore, their height of geopolitical potential phasing diminishing returns is

probably much lesser. Further, this indicates the new emerging role of India by joining the club of non-DAC donors.

The Multilateral aid from different agencies has also been observed positively influenced by the geopolitical potential. The significantly positive role of geopolitical potential is also observed during the WoT. Surprisingly, the WoT period effect has been found significantly positive only in the multilateral aid disbursement. The literature highlights the strong role of main donors in IMF and World Bank lending decisions. Further, the multilateral aid agencies significantly reduce aid on either presence of nuclear weapons or their growing stocks. The nuclear weapons' stockpiles when interacted with geopolitical potential indicates marginal reduction in aid by multilateral agencies either the inter-War or the WoT period. The countries with growing stocks of nuclear weapons receive marginally lesser aid compared to those which do not possess nuclear weapons.

Since, the bilateral aid disbursed by DAC donors to South Asian countries has remained higher than multilateral as well as bilateral aid from non-DAC donors. The polynomial relationship of geopolitical potential both with US military aid and bilateral aid from DAC donors, estimated in OLS method, has not been seen statistically significant in case of non-DAC donors and multilateral aid either due to relatively less strong relationship with geopolitical potential or lower volumes of aid. The graphical representation of scatter plots does not allow polynomial mathematical form of geopolitical potential in models. Nevertheless, the fixed effect estimations do not produce quadratic (or non-linear) relationship due to modelling issues and time-variant (feature of) geopolitical potential.

Trade openness has been seen significant in influencing aid disbursed by non-DAC donors and multilateral agencies. The DAC donors do not take trade openness into account much to advance aid. The relationship is found polynomial between trade openness and multilateral aid. It indicates that as country moves more towards trade liberalization, aid from multilateral sources starts increasing but after a certain level, it starts diminishing. This might indicate the realization of returns of trade openness at a certain level which reduces the further scope of aid disbursement.

Economic performance measured by growth rates is found significant in influencing aid from DAC donors and multilateral agencies whereas in case of non-DAC donors, it has been seen partially significant. The relationship is found positive between economic performance and

aid disbursed by DAC donors and multilateral organizations while non-DAC donors behave oppositely which means that during poor economic performance, they help the South Asian recipients.

The bilateral aid from DAC donors is also influenced positively by non-DAC aid and multilateral disbursement while the multilateral aid is influenced only by the aid from DAC donors. The non-DAC bilateral economic aid is significantly influenced by multilateral aid and partially by DAC aid. Further, we checked the direction of relationship from VAR models and Granger Casuality tests, which confirm that bilateral aid disbursed by DAC donors follows multilateral aid whereas multilateral and bilateral aid from non-DAC donors do not consider aid from other sources. We also observed that DAC aid follows US military assistance to South Asia using VAR and Granger Casuality tests. Hence, the bilateral aid from DAC donors is more reactive in making lending decisions based on other sources of aid (see sections III and IV of Appendix).

Population also seems important in determining aid from all sources but the relationship varies across donors. Only DAC donors positively respond to rise in population while non-DAC donors and multilateral agencies negatively account population growth.

The recipients' economic need measured by current account deficit is found significant only in non-DAC aid while for DAC aid and multilateral aid, it is observed insignificant. The relationship between non-DAC aid and current account balance (dummy 1 for positive, 0 otherwise) is negative, indicating a positive relationship between a deficit situation and aid disbursement. Therefore, the non-DAC donors respond to fiscal problems of South Asian recipients while the DAC donors and multilateral agencies do not take it into account.

Remarkably, we observe a negative relation between freedom from corruption and bilateral aid both from DAC and non-DAC donors whereas in case of multilateral aid, it is found insignificant. Comparatively, for DAC bilateral economic aid, it is found partially significant while strong effect has been observed in non-DAC aid. This indicates that the bilateral donors give more aid to those countries have low scores of freedom from corruption (or have high scores of corruption).

Democracy is found to be positively correlated with non-DAC economic aid whereas negatively associated with multilateral aid. The results indicates that if the country moves more towards strong democracy then bilateral economic aid from non-DAC donors increases

whereas the multilateral aid decreases. In South Asia, the multilateral aid has been given more to countries with low ranks of democracy or with autocratic rule. Bangladesh, Pakistan, and Sri Lanka in South Asia have faced political instability due to power struggle between military and democratic institutions. The negative relationship can also be traced from the literature on democracy (or autocracy) and aid. Knack (2004) finds no association between aid and change in democracy. Kalyvitis and Vlachaki (2012) find that multilateral aid has a negative and statistically significant effect on the political regime of recipients. Foreign aid supports autocratic rule in maintaining power, reduces government efficiency, and promotes corruption. Further, it generates a revenue flow that promotes rent-seeking activities and powerful people engage in rent-seeking activities for their personal benefits. Hence, aid assists autocratic regime to continue and take unpopular decisions (Mesquita & Smith, 2009). Since, this study investigates aid from geopolitical perspectives, Kersting and Kilby (2014), view democratic conditionality not significant for advancing aid to strategically important countries.

Political stability is found significant in influencing multilateral aid while partial significance has been observed in disbursement of bilateral aid from non-DAC donors. The relationship is found positive both with bilateral aid from non-DAC donors and multilateral aid.

We also observed the importance of per capita income in determination of bilateral aid from non-DAC donors and multilateral aid. The results exhibit that the bilateral aid from non-DAC aid increases with a rise in per capita income of South Asian recipients. The relationship has been witnessed partially significant. In case of multilateral aid, the relationship is found strongly negative which indicates that the multilateral agencies give more aid to countries with low per capita income, and specifies their (primary) objective to disburse aid to poor countries for their development. The poor or low-income countries are being preferred by multilateral agencies as compared to bilateral donors. One can argue that this is an average measure of poverty. The poverty data for South Asian countries is missing for larger time hence, for a simple analysis; we can observe the relationship for poverty purpose like Collier and Dollar (2002) measure the poverty reduction (by per capita income) due to aid allocation.

CHATPER VI

CONCLUSION

This study confirms that geopolitics has remained significant in influencing both bilateral aid (from DAC and non-DAC donors) and multilateral aid. It measures the geopolitical potential of South Asian countries by developing an index based upon common features using factor analysis. Based upon OLS estimations, we conclude that the bilateral aid from DAC donors has been significantly influenced by geopolitical potential of South Asian recipients. The relationship has been observed polynomial, which indicates that initially aid rises with growth in geopolitical potential but eventually starts falling due to overpowering status of geopolitical potential along with blurred picture of poverty and deprivation. This stage also indicates the aid disbursement purely based on developmental objectives. Further, it takes the economy towards the donors club rather recipient.

The empirical findings suggest a stronger effect of geopolitical potential on bilateral economic aid than the US military assistance. A potential reason could be the robust effect of military assistance on raising military capabilities which further raises geopolitical potential.

The results show the War on Terror (WoT) period effect to be insignificant with regard to aid disbursement by DAC donors. The geopolitical potential of South Asian recipients have not been found significant during the WoT while the donor's geopolitical interests are found significant in influencing aid during the WoT. Therefore, we can conclude that the bilateral aid from DAC donors has always been associated with geopolitics, either the geopolitical potential of recipients or donors' own geopolitical interests, have remained significantly influential in deriving aid.

Likewise, the bilateral aid from non-DAC donors has been found significantly subjective to the geopolitical potential of the South Asian recipients. The OLS and censored Tobit (normal) models indicate that the geopolitical potential of recipients have remained important in influencing aid from non-DAC donors. The WoT period effect has been found expressively negative while its interaction with geopolitical potential is found positive due to overwhelming role of geopolitical potential of recipients. Relative to DAC donors, the strength and capacity of advancing aid for non-DAC donors is quite lower; therefore, their height phasing the negative relationship with aid is substantially lower. Due to very large geopolitical potential, India has experienced a negative aid from non-DAC donors on average.

This indicates India's higher geopolitical potential size relative to non-DAC donors, and further defines its recent emerging role as a donor by joining the club of non-DAC donors.

The multilateral aid also follows a significantly positive relationship with geopolitical potential. The WoT period effect has been witnessed significantly positive only in multilateral aid disbursement to South Asia. The OLS and fixed effect models also suggest the significance of geopolitical potential during the WoT. We also introduced the role of geopolitical interests of donors as the literature suggests that main DAC donors also influence the multilateral aid. Our study confirms that geopolitical potential of recipients has been stronger in influencing the multilateral aid compared to geopolitical interests of main donors affecting funding of multilateral agencies while during the WoT, the role of geopolitical interests of donors in influencing multilateral funds is observed more profound.

From the empirical findings, we conclude that, overall, the non-developmental objectives of aid have remained stronger in case of South Asia, in the post-Cold War era, founded either on the geopolitical potential of the recipients or donors- based on their respective geopolitical interests.

REFERENCES

Abeyasekara, S. (2005). Multivariate Methods for Index Construction, chapter in book: *Household Surveys in Developing and Transition Countries: Design, Implementation and Analysis*. Department of Economic and Social Affairs, Statistics Division, Series F. No. 96, United Nations, New York.

Alcock, N. Z. & Newcombe, A. G. (1970). The perception of national power. *Journal of Conflict Resolution,* 14 (3), 335−343.

Alesina, A., & Dollar, D. (2000). Who gives Aid to Whom and Why?. *Journal of Economic Growth, 5*, pp. 33-63.

Alesina, A., & Weder, B. (2002). Do Corrupt Governments Receive Less Aid?. *The American Economic Review, Vol. 92 (4),* 1126-37.

Antony, G. M. & Rao, K. V. (2007). A Composite Index to Explain Variations in Poverty, Health, Nutritional status and Standard of Living: Use of Multivariate Statistical Methods. *Public Health*, 121, 578-587.

Asteriou, D. (2009). Foreign Aid and Economic Growth: New Evidence from a Panel Data Approach for five South Asian Countries. *Journal of Policy Modeling*, Vol. 31, 155-61.

Baines, J. M. (1972). U.S. Military Assistance to Latin America. *Journal of Inter-American Studies, Vol. 14*, 469-487.

Baldwin, D. A. (1966). Analytical Notes on Foreign Aid and Politics. *Background, Vol. 10(1),* 66-90.

Baldwin, D. A. (1979). Power Analysis and World Politics: New Trends versus Old Tendencies. *World Politics, Vol. 31 (2),* 161-94.

Ball, R. & Johnson, C. (1996). Political, Economic, and Humanitarian Motivations for PL 480 Food Aid: Evidence from Africa. *Economic Development and Cultural Change, Vol. 44, No. 3*, pp. 515-537

Balla, E. & Reinhardt, G. Y. (2008). Giving and Receiving Foreign Aid: Does Conflict Count?. *World Development, Vol. 36 (12),* 2566-2585.

Baltagi, B. H. (2008). Econometric Analysis of Panel Data. Fourth Edition: John Wiley & Sons, Ltd., India.

Barro, R. J. & Lee, J. W. (2005). IMF Programs: Who Is Chosen and What Are the Effects?. *Journal of Monetary Economics, 52 (7),* 1245-1269.

Beckman, P. R. (1984). *World Politics in the Twentieth Century*. Englewood Cliffs: Prentice-Hall.

Beenstock, M. (1980). Political Econometry of Official Development Assistance. *World Development, Vol. 8,* 137-44.

Berthelemy, J. C. & Tichit, A. (2004). Bilateral Donors' Aid Allocation Decisions: A Three-Dimensional Panel Analysis. *International Review of Economics and Finance, 13,* pp. 253-274.

Berthelemy, J. C. (2006). Bilateral Donors' Interests vs. Recipients' Development Motives in Aid Allocation: Do All Donors Behave the Same?. *Review of Development Economics, 10,* pp. 179-94.

Bhavan, T., Xu, C., & Zhong, C. (2011). Growth Effect of Foreign Aid and Volatility in South Asia. *International Journal of Development Issues, Vol. 10(3),* 204-13.

Bobrow, D. B. & Boyer, M. A. (2005). *Defensive Internationalism: Providing Public Goods in an Uncertain World*. Ann Arbor: University of Michigan Press.

Boone, Peter. (1996). Politics and the effectiveness of foreign aid. *European Economic Review, 40*, 289-329

Boschini, A. & Olofsgard, A. (2007). Foreign Aid: An Instrument for Fighting Poverty or Communism? *Journal of Development Studies, 43 (4*), 622-48.

Boutton, A & Carter, D. B. (2014). Fair-weather Allies? Terrorism and the Allocation of US Foreign Aid. *Journal of Conflict Resolution, Vol. 58(7),* 1144-73.

Bronshtein, M. (2011). Estonia: Economics and Geopolitics.

Browne, S. (2006). Aid and Influence: Do Donors Help or Hinder? Earthscan: London.

Bulir, A. & Hamann, J. (2003). Aid Volatility: An Empirical Assessment. *IMF Staff Papers, 50 (1),* 64-89

Bulir, A. & Lane, T. (2002). Aid and Fiscal Management. *IMF Working Paper No. 02/112*

Burnside, C. & Dollar, D. (2000). Aid, Policies and Growth. *American Economic Review, 90,* pp. 847-868.

Burnside, C. & Dollar, D. (2004). Aid, policies, and growth: Revisiting the Evidence. Policy Research Paper 3251. The World Bank: Washington.

Centre for Systemic Peace -Terrorism Data. http://www.systemicpeace.org/inscrdata.html

CIA World Factbook (various country reports over time), Washington, D.C., USA.

Cingranelli, D. L. & Pasquarello, T. P. (1985). Human Rights Practices and the U.S. Distribution of Foreign Aid to Latin American Countries. *American Journal of Political Science, 29 (2),* 539-63.

Clemens, M. A., Radelet, S. & Bhavnani, R. (2004). Counting Chickens when they hatch: The Short Term Effect of Aid on Growth. *Centre for Global Development Working Paper No. 44.*

Cline, R.S. (1975). *World Power Assessment: A Calculus of Strategic Drift*. Boulder: Westview Press.

Clist, P. (2011). 25 Years of Aid Allocation Process: Whither Selectivity?. *World Development, Vol. 39 (10),* 1724-34.

Collier, P. & Dehn, J. (2001).Aid, Policy and Shocks. Policy Research Working Paper 2688, World Bank, Washington, D.C.

Collier, P. & Hoeffler, A. (2002). Aid, Policy and Growth in Post-Conflict Societies. Policy Research Working Paper 2902, The World Bank, Washington, D.C.

Collier, P. & Dollar, D. (2002). Aid Allocation and Poverty Reduction. European Economic Review. Vol. 46 (8), p.p. 1475-1500.

Dalgaard, C.J., Hansen. H., Tarp F. (2004). On the Empirics of Foreign Aid and Growth. *The Economic Journal*, Vol. 114(496): 191–216.

Devetak, R., Burke, A., & George, J. (2012). *An Introduction to International Relations*. Cambridge University Press: UK.

Dollar, D. & Levin, V. (2006). The Increasing Selectivity of Foreign Aid, 1984-2003. *World Development, Vol. 34 (12),* 2034-46.

Dowling, J.M., & Hiemenz, U. (1982). Aid, Savings and Growth in the Asian Region. Asian Development Bank Economic Office Report Series No. 3.

Dowling, J.M., & Hiemenz, U. (1985). Biases in the Allocation of Foreign Aid: Some New Evidence, *World Development, Vol. 13(4*), 535–541.

Dreher, A., Nunnekamp, P., & Thiele, R. (2011). Are New Donors Different? Comparing the Allocation of Bilateral Aid Between Non-DAC and DAC Donor Countries. *World Development, Vol. 39(11),* 1950-68.

Dunning, T. (2004). Conditioning the Effects of Aid: Cold War Politics, Donor Credibility, and Democracy in Africa. *International Organization, vol. 58,* 409-23.

Durbarry, R., Gemmell, N. & Greenaway, D. (1998). New Evidence on the Impact of Foreign Aid and Economic Growth. Centre for Research in Economic Development and International Trade Research Paper No. 98/8.

Eifert, B. & Gelb, A. (2005). Improving the Dynamics of Aid; Towards More Predictable Budget Support. *World Bank Policy Research Working Paper 3732*

Ferris, W. H. (1973). *The Power Capabilities of Nation-States: International Conflict and War*. Lexington: Lexington.

Fitch, J. S. (1979). The Political Impact of U.S. Military Aid to Latin America: Institutional and Individual Effects. *Armed Forces & Society, Vol. 5,* 360-386.

Fleck, R. K. & Kilby, C. (2010). Changing Aid Regimes? U.S. Foreign Aid from the Cold War to the War on Terror. *Journal of Development Economics, vol. 91,* 185-97.

Flint, Colin. (2011). *Introduction to Geopolitics.* First Edition, Routledge, USA and Canada.

Franco-Rodriguez, S., Morrissey, O. & McGillivray, M. (1998). Aid and the Public Sector in Pakistan: Evidence with Endogenous Growth. *World Development, 26,* pp. 1241-1250.

Friedensburg, F. (1936). *Die Mineralischen Bodenschätze als weltpolitische und militärische Machtfaktoren*. Stuttgart: Ferdinand Enke Verlag.

Fucks, W. (1978). *Mächte von Morgen: Kraftfelder, Tendenzen, Konsequenzen*. Stuttgart: Deutsche Verlags-Anstalt.

Gang, I. & Lehman, J. (1990). New Direction or Not: Aid in Latin America. *World Development, 18,* pp. 723-732.

Gereffi, G. (1989). Rethinking Development Theory: Insights from East Asia and Latin America. *Sociological Forum, Vol. 4 (4).*

German, F. C. (1960). A Tentative Evaluation of World Power. *Journal of Conflict Resolution* 4 (1), 138−144.

Goldsmith, A. A. (2001). Foreign Aid and Statehood in Africa. *International Organization, Vol. 55(1),* 123-148.

Gujrati, D. N. & orter, D. C. (2009). Basic Econometrics. International Edition (5): Mc-Graw Hill Inc., Singapore.

Gulhati, R. & Nallari, R. (1988). Reform of Foreign Aid Policies: The Issue of inter-Country Allocation in Africa. *World Development, Vol. 16 (10),* pp. 1167-84.

Hansen, H. & Tarp, F. (2000). Aid Effectiveness Disputed. chapter in *Foreign Aid and Development: Lessons Learnt and Directions for the Future,* Edited by Finn Tarp and Peter Hjertholm, Published by Routledge, London.

Harrigan, J., Wang, C. & El-Said, H. (2006). The Economic and Political Determinants of IMF and World Bank lending in the Middle East and North Africa. *World Development, Vol. 34 (2),* 247–270.

Haushofer, Karl *et al.* (1928). *Bausteine zur Geopolitik*. Berlin: Vowinckel.

Headey, Derek. (2008). Geopolitics and the Effect of Foreign Aid on Economic Growth: 1970-2001. *Journal of International Development, 20,* 161-80.

Heritage Foundation - Freedom from Corruption Data/ Report. http://www.heritage.org/index/freedom-from-corruption

Hess, P. N. (1989). Force Ratios, Arms Imports and Foreign Aid Receipts in the Developing Nations. *Journal of Peace Research, Vol. 26, No. 4,* pp. 399-412.

http://data.worldbank.org/data-catalog/world-development-indicators

https://www.cia.gov/library/publications/the-world-factbook/

Hudson, J. & Mosley, P. (2008). The Macroeconomic Impact of Aid Volatility. *Economics Letters, Vol. 99*, 486-89.

Human Development Reports, World Bank. http://hdr.undp.org/en/content/human-development-index-hdi

IAEA Reports. https://www.iaea.org/

Ikenberry, J. G. (2011). *Liberal Leviathan: The Origins, Crisis, and Transformation of the American World Order.* Princeton, NJ: Princeton University Press.

IMF Direction of Trade Statistics. https://www.imf.org/external/pubs/cat/longres.aspx?sk=19305.0

IMF Government Finance Statistics. http://www.imf.org/external/pubs/ft/gfs/manual/gfs.htm

Jones, S., Riddell, R., & Kotoglou, K. (2005). *Aid Allocation Criteria: Managing for Development Results and Difficult Partnerships.* (Paris: OECD).

Kalyvitis, S., & Vlachaki, I. (2012). When Does More Aid imply less Democracy? An Empirical Examination. *European Journal of Political Economy,* Vol. 28, p.p. 132-46.

Kaplan, S. S. (1975). The Distribution of Aid to Latin America: A Cross-National Aggregate Data and Time Series Analysis. *The Journal of Developing Areas, Vol. 10*, 37–60.

Katada, S. N. (1997). Two Aid Hegemons: Japanese-US interaction and aid allocation to Latin America and the Caribbean. *World Development, Vol. 25 (6),* 931-9454.

Kersting, E., & Kilby, C. (2014). Aid and Democracy Redux. *European Economic Review*, Vol. 67, p.p. 125-43.

Knack, S. (2004). Does Foreign Aid Promote Democracy?. International Studies Quarterly, 48(1), 251-66.

Krishnan, V. (2010). *Constructing an Area-based Socioeconomic Index: A Principal Component Analysis Approach.* Early Child Development Mapping Project, University of Alberta, Canada.

Kristensen, H. M., & Norris, R. S. (2013). Global Nuclear Weapons Inventories: 1945-2013. *Bulletin of the Atomic Scientists*. Vol. 69, No. 5, pp: 75-81.

Lacoste, Y. (ed.) (1993). Dictionnaire de géopolitique. Paris, Flammarion.

Lai, B. (2003). Examining the Goals of U.S. Foreign Assistance in the Post-Cold War period: 1991-96. *Journal of Peace Research, vol.40,* 103-28

Lake, D. A. (1999). *Entangling Relations: American Foreign Policy in its Century*. Princeton: Princeton University Press.

Lake, D. A. (2009). *Hierarchy in International Relations*. Ithaca: Cornell University Press.

Lancaster, C. (2008). Foreign Aid in Twenty-first Century: What Purposes? chapter in *Foreign Aid and Foreign Policy: Lessons for the Next Half Century (Transformational Trends in Governance and Democracy),* Edited by Picard, L.A., Groelsema, R., and Buss, T. F., National Academy of Public Policy, Published by M.E. Sharpe Inc., USA.

Lebovic, J. H. (1988). National Interests and U.S. Foreign Aid: The Carter and Reagan Years. *Journal of Peace Research, 25 (2),* 115-133.

Lensink, R. & Morrissey, O. (2000). Aid Instability as a Measure of Uncertainty & the Positive Impact of Aid on Growth. *The Journal of Development Studies, 36(3).*

Lensink, R. & White, H. (2000). Aid Allocation, Poverty Reduction and the Assessing Aid Report. *Journal of International Development, Vol. 12,* 399-412.

Maizles, A. & Nissanke, M. K. (1984). Motivations for Aid to Developing Countries. *World Development, 12,* pp. 879-900.

McCormick, J. & Mitchell, N. (1988). Is U.S. Aid Really Linked to Human Rights in Latin America? *American Journal of Political Science, Vol. 32(1),* 231-239.

McGillivray, M. (1989). The Allocation of Aid among Developing Countries: A Multi-Donor Analysis Using A Per-Capita Aid Index. *World Development, Vol. 17, No. 4,* 561-68.

McGillivray, M. (2003). Policy-based Lending, Structural Adjustment and Economic Growth in Pakistan. *Journal of Policy Modelling, 25*, pp. 113-121.

McKinlay, R. D. & Little, R. (1978). A Foreign Policy Model of the Distribution of British Bilateral Aid: 1960-70. *British Journal of Political Science, Vol. 8(3),* 313-32.

McKinlay, R. D. & Little, R. (1979). The US Aid Relationship: A Test of the Recipient Need and the Donor Interest Models. *Political Studies, 31*, pp. 236-249.

McKinlay, R.D., & Little, R. (1977). A Foreign Policy Model of US Bilateral Aid Allocation. *World Politics, Vol. 30(1),* 58-86.

Meernik, J., Krueger, E. L. & Poe, S. C. (1998). Testing Models of U.S. Foreign Policy: Foreign Aid During and After the Cold War. *Journal of Politics, 60 (1),* 63-85.

Mesquita, B.B. D & Smith, A. (2007). Foreign Aid and Policy Concessions. *Journal of Conflict Resolution, Vol. 51 (2*), 251-84.

Mesquita, B.B. D & Smith, A. (2009). A Political Economy of Aid. *International Organization, Vol. 63 (2),* 309-40.

Morgenthau, H. (1962). A Political Theory of Foreign Aid. *The American Political Science Review, Vol. 56,* Issue 2, 301-309.

Morrissey, O. (1996). Business Interests and Aid Policy. Paper presented at the seminar on The Future of Aid: Donor Constituencies, hosted by CDR in November, Copenhagen.

Mosley, P. & Suleiman, A. (2007). Aid, Agriculture and Poverty in Developing Countries. *Review of Development Economics, 11 (1),* 139-58.

Mosley, P. (1980). Aid, Savings, and Growth Revisited. *Oxford Bulletin of Economics and Statistics, Vol. 42 (2),* pp. 79-96.

Moss, T., Roodman, D., & Standley, S. (2005). The Global War on Terror and US Development Assistance: USAID Allocation by Country, 1998-2005. Working Paper No. 62, Centre for Global Development.

Mueller, J. (2006*). Overblown: How Politicians and the Terrorism Industry Inflate National Security Threats, and Why We Believe Them*. New York: Free Press.

Mussa, M. (1999). Reforming the International Financial Architecture: Limiting Moral Hazard and Containing Real Hazard, in David Gruen and Luke Gower (eds.): *Capital Flows and International Financial System,* Reserve Bank of Australia, pp. 216-36.

Nardo, M., Saisana, M., Saltelli, A., Tarantola, S., Hoffman, A., & Giovannini, E. (2005). Handbook on Constructing Composite Indicators: Methodology and User Guide. *OECD Statistics Working Paper*, 05/03.

Neumayer, E. (2003). *The Pattern of Aid Giving*. London: Routledge.

Oatley, T. & Yackee, J. (2000). American Interests and IMF Lending. *International Politics, 41 (3),* pp. 415-429.

OECD Aid Statistics 2014. http;\\www. http://stats.oecd.org/

Osterud, O. (1998). The Uses and Abuses of Geopolitics. *Journal of Peace Research, 25(2),* pp. 191-199.

Pach Jr., C. J. (1982). The Containment of US Military Aid to Latin America: 1944-49. *Diplomatic History, Vol. 6 (3),* 225-244.

Poe, S. C. & Meernik, J. (1995). US Military Aid in the Eighties: A Global Analysis. *Journal of Peace Research, 32 (4),* 399-412.

Poe, S. C. (1991a). Human Rights and the Allocation of US Military Assistance. *Journal of Peace Research, Vol. 28, No. 2*, 205-16.

Poe, S. C. (1991b). U.S. Economic Aid Allocation: The Quest for Cumulation. *International Interactions, 16 (4),* 295-316.

Poe, S. C. (1992). Human Rights and Economic Aid Allocation under Ronald Reagan and Jimmy Carter. *American Journal of Political Science, 36(1*), 147-67.

Polity IV dataset. http://www.systemicpeace.org/inscrdata.html

Pomeroy, R.S., Pollnac, R. B., Katon, B. M. & Predo, C. D. (1997). Evaluating Factors contributing to the Success of Community-based Coastal Resource Management: The Central Visayas Region Project-1, Philippines. *Ocean and Coastal Management* 36 (1-3): 24.

Radelet, S. (2006). A Primer on Foreign Aid. Centre for Global Development, Washington, D.C., Workign Paper No. 92.

Rajan, R. G. & Subramanian, A. (2008). Aid and Growth: What does the Cross-country Evidence really Show? *The Review of Economics and Statistics, Vol. 90 (4),* 643-665.

Ram, R. (2003). Roles of Bilateral and Multilateral Aid in Economic Growth of Developing Countries. *Kyklos*. Vol. 56, No. 1, pp: 95-110.

Reynaud, J. & Vauday, J. (2009). Geopolitics and International Organizations: An Empirical Study on IMF Facilities. *Journal of Development Economics, 89*, 139-62.

Riddell, R. C. (1999). The End of Foreign Aid to Africa? Concerns about Donor Policies. *African Affairs, Vol. 98, Issue 392,* pp. 309-335.

Rodrik, D. (1990). How Should Structural Adjustment Programmes be designed? *World Development, Vol. 18*, 933-947.

Roodman D. (2004). The Anarchy of Numbers: Aid, Development and Cross-country Empirics. Working Paper No. 32, Centre for Global Development, Washington DC.

Rose, A. K. (2007). The Foreign Service and Foreign Trade: Embassies as Export Promotion. *The World Economy, 30 (1),* pp. 22–38.

Schoultz, L. (1981). US Foreign Policy and Human Rights Violations in Latin America: A Comparative Analysis of Foreign Aid Distributions. *Comparative Politics, Vol. 13 (2),* 149–170.

Schraeder, P.J., Hook, S.W. & Taylor, B. (1998). Clarifying the Foreign Aid Puzzle: A Comparison of American, Japanese, French and Swedish Flows. *World Politics, Vol. 50(2),* 294-323.

Sekhar, C. C., Indrayan, A., & Gupta, S. M. (1991). Development of an Index of Need for Health Resources for Indian States Using Factor Analysis. *International Journal of Epidemiology*, 20(1), 246-250.

Singer, J. D., Bremer, S., & Stuckey, J. (1972). Capability Distribution, Uncertainty, and Major Power War, 1820−1965, chapter in book: *Peace, War, and Numbers*. Beverly Hills: Sage Publications, 19−48.

Sogge, D. (2002). *Give and Take: What's the Matter with Foreign Aid*, Zed Books: London.

Stein, M., Ishimatsu, M., & Stoll, R.J. (1985.) The Fiscal Impact of the U.S. Military Assistance Program, 1967-1976. *Western Political Quarterly, Vol. 38*, 27–43.

Stockholm International Peace Research Institute (SIPRI) database. https://www.sipri.org/

Stone, R. W. (2004). The Political Economy of IMF Lending in Africa. *American Political Science Review, Vol. 98 (4),* 577-91.

Tarp, F. & Hjertholm, P. (2000*). Foreign Aid and Development*. Routledge: London & New York.

Teclean, C. (2010). The Arab World-Between Centrality and Periphery on the Political Map. *Revisita Romana de Geografie Politica,* Year XII, No. 1, pp. 64-80.

Teschke, B. (2006). Debating 'The Myth of 1648': State Formation, the Interstate Discipline, and the Emergence of Capitalism in Europe- A Rejoinder. *International Politics*. Vol. 43.

The Heritage Foundation. http://www.heritage.org/

Travis, R. (1995). U.S. Security Assistance Policy and Democracy: A Look at the 1980s. *Journal of Developing Areas, 29(4),* 541-562.

Travis, R. (2010). Problems, Politics, and Policy Streams: A Reconsideration US Foreign Aid Behaviour toward Africa. *International Studies Quarterly, Vol. 54 (3),* 797-821.

Trumbull, W. N., & Wall, H. J. (1994). Estimating Aid Allocation Criteria with Panel Data. *Economic Journal,* Vol. 104, 876-882.

Tsoutsoplides, C. (1991). The Determinants of Geographical Allocation of EC Aid to the Developing Countries. *Applied Economics, 23,* pp. 647-658.

UK Mineral Statistics database. http://www.bgs.ac.uk/mineralsUK/statistics/ukStatistics.html

UN Energy Statistics database. http://unstats.un.org/unsd/energy/edbase.htm

UN Peace Keeping Statistics. http://www.un.org/en/peacekeeping/resources/statistics/

UN Security Council Statistics/ Reports. http://www.securitycouncilreport.org/security-council-statistics/

US Energy Information Administration database. http://www.eia.gov/

US Overseas Loans and Grants (Greenbook). https://explorer.usaid.gov/reports-greenbook.html

US State Department Congressional Reports. http://www.state.gov/p/io/rls/rpt/index.htm

Vaubel, R. (1991). A Public Choice View of International Organization. Vaubel and Willett (eds.), *The Political Economy of International Organization: A Public Choice Approach*, Boulder: Westview Press.

Wittkopf, E.R. (1973). Foreign Aid and United Nations Votes: A Comparative Study. *The American Political Science Review, Vol. 67*, 868-88.

World Bank. (1998). *Assessing Aid—What Works, What Doesn't, and Why?*. Washington D.C.

World Development Indicators Statistics, World Bank Database.

Wright, J. & Winters, M. (2010). The Politics of Effective Foreign Aid. *Annual Review of Political Science, Vol. 13*, 61-80.

Wright, Q. (1955). *The Study of International Relations*. New York: Appleton-Century-Crofts.

Younas, J. (2008). Motivation for Bilateral Aid Allocation: Altruism or Trade Benefits. *European Journal of Political Economy, Vol. 24*, 661-674.

Zarghani, S. H., Hafeznia, M. R., Ahmadipor, Z., & Eftekhari, A. R. (2008). Presentation a New Model to Measure National Power of the Countries. *Journal of Applied Sciences,* 8 (2), pp. 230-40.

APPENDIX

I. List of Donors

DAC Donors	Non-DAC Donors	Multilateral Agencies
Australia	Algeria	AfDB
Austria	Bulgaria	AfDF
Belgium	Chinese Taipei	Arab Fund (AFESD)
Canada	Croatia	AsDB
Czech Republic	Cyprus	AsDB Special Funds
Denmark	Estonia	BADEA
EU Institutions	Hungary	CarDB
Finland	Iraq	Climate Investment Funds [CIF]
France	Israel	EBRD
Germany	Kazakhstan	GAVI, the Vaccine Alliance
Greece	Kuwait (KFAED)	GEF
Iceland	Latvia	Global Fund
Ireland	Libya	Global Green Growth Institute (GGGI)
Italy	Liechtenstein	IAEA
Japan	Lithuania	IBRD
Korea	Malta	IDA
Luxembourg	Qatar	IDB
Netherlands	Romania	IDB Sp.Fund
New Zealand	Russia	IFAD
Norway	Saudi Arabia	IFC
Poland	Thailand	IMF
Portugal	Turkey	IMF (Concessional Trust Funds)
Slovak Republic	United Arab Emirates	Islamic Development Bank
Slovenia		Montreal Protocol
Spain		Nordic Development Fund
Sweden		OFID
Switzerland		OSCE
United Kingdom		UN Agencies
United States		UNAIDS
		UNDP
		UNECE
		UNEP
		UNFPA
		UNHCR
		UNICEF
		UNPBF
		UNRWA
		UNTA
		WFP
		WHO

II. Robustness Checks:

In this section, we will be checking out the strength of our bilateral and multilateral aid models according to classical regression assumptions. First of all, we will discuss multicollinearity, autocorrelation, residuals' normality and then heteroscedasticity to determine the health of our results. Following classical regression assumptions, we found our models unbiased as well as efficient generally. Later, this appendix section covers the stationarity status of our concerned variables. Sections III shows vector autoregressive (VAR) model and Granger Casuality test of US military aid and DAC economic aid whereas section IV covers VAR models and Granger Casuality test for DAC economic aid, Non-DAC economic aid, and multilateral aid respectively.

a. Multicollinearity:

We observed some high multicollinearity cases among few variables accordingly to our expectations (Table 18). Each strong case is being discussed here under.

At first, high multicollinearity has been observed between *democracy* and *political stability*. We used the data from Polity IV project developed by Centre for Systematic Peace. Both the variables have some strong relationship in the construction phase. Political stability (Polity) variable has been derived by subtracting score of autocracy from democracy. Democracy is an eleven point scaled indicator based upon openness and competitiveness of executive recruitment, constraints of chief executive, and competitiveness of political participation. The modified version of political stability (Polity2) is designed for time series analyses completely based upon standard political stability (Polity) indicator, derived from difference between democracy and autocracy. Therefore, we expected some strong multicollinearity between these two variables.

A classic example of multicollinearity between *income* and *population* has been seen in our models too. A great amount of literature describes the relation between income and population. A large population leads to high income. If population is given some level of education or they equip themselves with training and skills then a level of human capital raises thus provides more returns to productivity and income. The large population leads to a large number of doctors, engineers, scientists, researchers, and other skilled personals. Even low level of skills provide labor role in production due to volume. The mixed pattern of

general labor and high skilled labor can be considered for South Asian countries for their contribution in production and income respectively.

A few more strong multicollinearities have been seen among income and geopolitical potential, population and geopolitical potential, and geopolitical potential and nuclear weapons. The literature based on determining strategic interests of donors has taken population and income separately. Of course, income determines the economic strength or capacity at national or individual level in per capita terms. It also derives the economic deprivation or poverty and determines the response of donors to low levels of income in order to establish its developmental objectives. Therefore, we considered it separately as most of the studies have taken it. Similarly, population has been taken separately in most of the studies to determine its significance in determining aid targeting larger population, which may also be the reason for economic deprivation due to lack of resources.

Both income and population are considered as important sources determining geopolitical potential. They can also be interpreted in forms of 'capital' and 'labor' inputs for the geopolitical potential respectively. The studies carried out on determining the national power featuring geopolitical potential have considered these two important sources. Friedensburg (1936), Wright (1955), German (1960), Singer (1972), Fucks (1978), and Beckman (1984) have strongly recommended population as an important source determining national power. German (1960), Alcock and Newcombe (1970), Ferris (1973), Cline (1975) and Zarghani *et al.* (2008) have used income as an important factor to derive the national power. Teclean (2010) also used population and income to measure the geopolitical potential. Similarly, few studies like German (1960) and Beckman (1984) have considered nuclear capabilities as an important source of national power. Recently, Reynaud and Vauday (2009) used nuclear capabilities to determine the geopolitical potential of recipients influencing the IMF lending. Therefore, depending upon their individual significance and their relevant scope, we considered income, population, and nuclear capabilities separately. Though, they all are important sources of geopolitical potential but have been taken distinctly to determine their individual behaviour that significantly varies across donors as our models suggest.

We also found high multicollinearity between the US military aid and US alliance. The US military aid is being disbursed to those countries having strategic or defence agreements or in alliance with the United States.

Another high multicollinearity has been observed between US alliance and high casualty terrorist bombings or incidents per year. Since Pakistan has been in alliance with US, and has faced terrorist attacks after it made military operations as per US demand in its North Western territory against extremists which led a rise in massive bombings in countryside. The critics observe it as a reaction of the military operations under the US alliance in northern territory.

We have used variety of variables for each factor in our models for different purposes like current account dummy (1 for positive or 0 otherwise) and current account balance (percent of GDP), nuclear warheads presence (1 for presence, 0 otherwise) and nuclear stockpiles (for progress and growth), high casualty terrorists' bombings deaths and incidents per year (frequency), therefore, some high collinearity has been seen in these variables. Since these variables have been taken separately in different models, therefore, they are not relevant.

a. Autocorrelation:

The autocorrelation is a serious problem in time series analysis that makes your results inefficient. It simply describes the correlated error terms over time. Our results generally indicate the absence of autocorrelation between error terms. Almost all the Durbin-Watson *d* statistics obtained in different models were later analysed as falling in non-rejection of our null hypothesis, i.e. there is no autocorrelation, except few models[17] in Non-DAC OLS fixed effect estimations.

The Durbin Watson d-statistics is obtained by:

$$d = \frac{\sum_{t=2}^{t=n}(e_t - e_{t-1})^2}{\sum_{t=1}^{t=n}(e_t)^2}$$

It is basically the ratio of sum of squared differences in residuals to the residuals sum of squares. The degree of freedom in numerator is n-1 as it subtracts one observation in measuring differences of residuals. The *d* -statistic ranges between 0 and 4.

[17] Models VII, VIII and IX in fixed effect estimations of Non-DAC Aid

Table 18: CORRELATIONS

	CA_DUMMY	CURRENT_ACCOUNT_	HF_CORRUPTION	DEMOC	LDACAID	LGDPPC$	LGDPGROWTH	LGPFAWTD	LMULTIAID	LSHAREOFD	LTRADE	LUSMILAID	GDP_GROWTH	HCTB_DEATHS	NUCLEAR_STOCKPILE	NUCLEAR_WARHEADS	US_ALLY	WT	POLITY2	POPULATION	HCTB_INCIDENTS_	LNONDACAID
CA_DUMMY	1																					
CURRENT_ACCOUNT_%OF_GDP	0.68035178	1																				
HF_CORRUPTION	-0.3942296	-0.307644318	1																			
DEMOC	-0.2101793	-0.149827257	0.261427389	1																		
LDACAID	-0.1226731	0.015790287	-0.003137759	-0.021	1																	
LGDPPC$	-0.1243953	-0.035399498	0.264589399	0.2483	0.53498	1																
LGDPGROWTH	-0.0921897	-0.115464909	0.209894338	0.2297	-0.1941	0.21597	1															
LGPFAWTD	-0.1705265	-0.02500514	0.233360202	0.1942	0.44463	0.94605	0.16163175	1														
LMULTIAID	0.24770141	0.289490959	-0.263296063	-0.161	0.44722	0.56886	0.0477365	0.506496	1													
LSHAREOFDONORS	-0.3733801	-0.260924984	0.273910507	-0.1155	0.08744	0.35566	0.06094785	0.404827	0.18636	1												
LTRADE	-0.3456409	-0.465917105	0.563639258	0.3469	-0.3389	-0.3065	0.29911693	-0.28529	-0.65328	-0.10906	1											
LUSMILAID	-0.1777448	-0.082129903	-0.023017368	-0.3215	0.41863	0.30066	-0.2834722	0.322022	0.36305	0.151809	-0.3369	1										
GDP_GROWTH___ANNUAL_	-0.1296085	-0.141599351	0.246609257	0.2578	-0.1028	0.34853	0.96410554	0.302829	0.12039	0.109303	0.258	-0.1922	1									
HCTB_DEATHS	-0.2870046	-0.2331708	0.075779485	0.0365	0.45498	0.34015	-0.4624482	0.339769	0.223694	0.156821	-0.2222	0.694291	-0.31892183	1								
NUCLEAR_STOCKPILEs	-0.315863	-0.185607706	0.163717053	0.1673	0.63134	0.75686	-0.1624512	0.787265	0.351186	0.240497	-0.2336	0.613106	-0.02691966	0.659590444	1							
NUCLEAR_WARHEADS_DUMMY	-0.2439904	-0.071187544	0.147594679	-0.0944	0.45842	0.76694	-0.1059839	0.889883	0.460407	0.429922	-0.3695	0.568167	0.04299491	0.51832721	0.844463169	1						
US_ALLY	-0.1017938	-0.048308314	-0.085101186	-0.4639	0.41288	0.22014	-0.4675039	0.285195	0.385153	0.269133	-0.4276	0.819976	-0.36282163	0.64880378	0.590008344	0.618852748	1					
WT	0.22001416	0.172988697	0.103600981	0.07	0.30831	0.42021	0.12220711	0.308944	0.421418	-0.21402	-0.0791	0.33966	0.19435848	0.21227779	0.309030941	0.223835819	0.24709	1				
POLITY2	-0.2181048	-0.18039921	0.203962105	0.9728	0.00333	0.20041	0.14992865	0.125264	-0.12732	-0.13934	0.2793	-0.244334	0.17407522	0.11002553	0.166387085	-0.128683224	-0.386	0.055	1			
POPULATION_TOTAL	-0.1390804	-0.039613004	0.247998147	0.5009	0.28782	0.85586	0.37410398	0.890466	0.335588	0.229758	-0.0381	-0.022036	0.47984586	0.0913478	0.600051986	0.621592125	-0.1175	0.2411	0.40075	1		
HCTB_INCIDENTS_PER_YEAR	-0.2839602	-0.246753729	0.061162065	-0.0184	0.42081	0.28749	-0.4669609	0.277577	0.204815	0.151156	-0.2428	0.711289	-0.34899353	0.96375782	0.654088591	0.493424173	0.70001	0.2015	0.06873	-0.000265	1	
LNONDACAID	-0.2811703	-0.216972492	-0.071134878	-0.3668	0.50426	0.31003	-0.3311409	0.245491	0.405958	0.393563	-0.4112	0.694205	-0.24742268	0.61233353	0.476244059	0.435889997	0.71567	0.1732	-0.3001	-0.088874	0.6457763	1

Later, we used these d-statistics to determine the status of autocorrelation in residuals of our estimated models. We used the following criteria for non-rejection of our null hypothesis which states that residuals have no autocorrelation.

Non-rejection Area:

$d > d_{U,\ \alpha/2}$

or $(4- d) > d_{U,\ \alpha/2}$

while the rejection phase has following criteria

$d < d_{L,\ \alpha/2}$

or $4- d) < d_{L,\ \alpha/2}$

Using these formulae, we reach to conclusion that our models generally have no autocorrelation in their residuals. The rejection of null hypothesis indicates that results are inefficient but not biased.

For example, the OLS model I of DAC Aid, we measure the non-rejection status by following method.

$(4- d) > d_{U,\ \alpha/2}$

$(4-1.0944) > 1.83203$

$2.9056 > 1.83203$

Therefore, we do no reject null hypothesis that there is no autocorrelation in residuals.

b. Residuals Normality:

The most important parameter to look the empirical results is based upon the normality of their residuals. There are couple of indicators to measure the normality of the residuals but we used Jarque-Bera (JB) statistics to determine the residuals' normality. The formula is given here under:

$JB = n\ [S^2/6 + (K-3)^2 / 24] \sim \chi_2^2$

Where n is a sample size, S stands for skewness, while K is kurtosis coefficient. We use the chi-square distribution to measure the p-value of the JB test statistics to determine its significance.

Since the null hypothesis is residuals normality, if the p-value of JB test is found closer to zero and less than 0.05, we reject the null- hypothesis. Alternatively, if the JB test probability exceeds 0.05, we do not reject null hypothesis and states that residuals are normal. The rejection of residuals normality indicates the biased results.

Our all models of US military aid, bilateral aid from DAC and non-DAC donors and multilateral aid in all forms report the normality of residuals since the JB tests p-values are greater than 0.05.

c. Residuals Heteroscedasticity:

Another important feature that questions the efficiency of the results is residuals' homoscedasticity. The classical linear regressions assume that the error terms have homoscedasticity which means equal variance across observations.

We used Breusch-Pagan (BP) test to determine the residuals' homo or heteroscedasticity status. Our all models of aid either bilateral or multilateral indicate the equal variance or homoscedasticity in their residuals since their BP tests' p-values are greater than 0.05, which indicates the non-rejection of null hypothesis, i.e. residuals have equal variance across observations.

d. Stationarity:

The classical regression models considering time series data should be based upon stationarity status which means mean and variance stand constant over time and covariance depends only upon the distance between the periods under consideration. If the time series models use non-stationarity series of variables, then such regression is termed as spurious regression. In case of non-stationarity, other measures like autoregressive or error correlation models are applied.

Since most of the variables are found stationary, that allowed us to apply OLS regression models. The very few variables were initially found non-stationary, but later turned stationary by taking log forms. We used Levin, Lin and Chu, and PP-Fisher Chi-square tests to confirm the stationarity status of concerned variables. A few variables were found non-stationary

which later turned stationary by taking their first differences and using such forms in our models, e.g. trade, per capita income, US ally, and War on Terror. The following table shows the stationarity status of variables being used in models.

Table 19: Unit Root Tests

		Unit Root Tests			
#	Variables		Levin, Lin & Chu		PP-Fisher Chi Sq.
1	Current Account (% of GDP)	*Level*	-2.912***		25.2888***
		First Difference	-5.0194***		171.135***
2	Current Account Dummy	*Level*	-2.1839**		13.8072**
		First Difference	-5.2428***		65.319***
3	Democracy	*Level*	-1.7702**		14.3965*
		First Difference	-4.4649***		78.3601***
4	GDP growth	*Level*	-3.6864***		49.3314***
		First Difference	-7.0409***		552.533***
5	HCTB Deaths	*Level*	-2.2054**		38.7404***
		First Difference	-9.5796***		217.042***
6	HCTB Incidents per year	*Level*	-1.185*		17.9181**
		First Difference	-7.8932***		111.382***
7	HF Corruption	*Level*	-4.527***		87.8395***
		First Difference	-9.0571***		282.619***
8	LDAC Aid	*Level*	-1.1494*		16.1631**
		First Difference	-5.3591***		134.757***
9	LGDP Growth	*Level*	-3.5595***		63.5498***
		First Difference	-6.35205***		678.848***
10	LGNPPC $	*Level*	0.446664		3.91709
		First Difference	-2.74432***		49.8944***
11	LGPFAWTD	*Level*	-2.5832***		17.9678**
		First Difference	-5.0973***		343.744***
12	LGPORIG	*Level*	-2.6535***		17.269**
		First Difference	-5.114***		342.371***
13	LNON DAC AID	*Level*	-3.1349***		38.985***
		First Difference	-7.9475***		79.2137***
14	LSHARE OF DONORS	*Level*	-5.9151***		72.0536***
		First Difference	-2.3905***		118.598***
15	LTRADE	*Level*	-0.8197		15.6051*
		First Difference	-3.9333***		91.4019***
16	Non DAC Aid	*Level*	-4.1849***		87.2484***
		First Difference	-3.2525***		576.251***
16	Nuclear Warheads	*Level*	-0.8648*		2.6626
		First Difference	-3.2345***		19.7622***
17	Nuclear Weapon Stockpile	*Level*	-1.9637**		0.3984
		First Difference	-0.5769***		2.6293**
18	Polity2	*Level*	-1.733**		14.1753*
		First Difference	-5.1686***		78.1987***
19	Population	*Level*	-9.3995***		49.0675***
		First Difference	-4.8058***		22.3919***
20	US Ally	*Level*	-0.1521		0.9595
		First Difference	-2.1099**		9.2663***
21	US Mil Aid	*Level*	-1.89597**		17.9460**
		First Difference	-5.48041***		102.6250***
22	WT	*Level*	-0.3402*		4.7977
		First Difference	-4.7178***		46.3314***

*,**,*** represent significance at 10, 5 and 1 percent levels respectively

III. Vector Autoregressive (VAR) Model of US Military Aid and Bilateral DAC Aid

Table 20: Vector Autoregressive Models

VECTOR AUTOREGRESSIVE ESTIMATES		
	DAC AID	**US MIL AID**
C	129.4448***	31290543*
DAC AID(-1)	0.793386***	-27799.35
DAC AID (-2)	0.016273	-10303.19
US MIL AID (-1)	0.00000103***	0.958729***
US MIL AID (-2)	-0.000000781*	-0.115773
R-squared	0.72144	0.66427
Adj. R-squared	0.70971	0.65013
F-Statistics	61.5099	46.99141

***, **, * represent the significance at 1%, 5%, and 10% levels respectively.

Table 21: Granger Casuality between US Military Aid and Bilateral DAC Economic Aid

VAR GRANGER CAUSALITY/ BLOCK EXOGENEITY WALD TESTS

Sample: 1991 2013

Included observations: 100

Dependent variable: DAC_AID

Excluded	**Chi-sq**	**df**	**Prob.**
US_MIL_AID	7.219229	2	0.0271
All	7.219229	2	0.0271

Dependent variable: US_MIL_AID

Excluded	**Chi-sq**	**df**	**Prob.**
DAC_AID	2.506601	2	0.2856
All	2.506601	2	0.2856

IV. Vector Autoregressive (VAR) Models: DAC Aid, Non-DAC Aid, and Multilateral Aid

Table 22: VAR Models

Vector Autoregression Estimations
standard errors in ( ) and t-statistics in [ ]

	LDACAID	LNONDACAID	LMULTIAID
LDACAID(-1)	0.767857***	-0.074829	0.110626
	(0.11858)	(0.38227)	(0.22009)
	[6.47546]	[-0.19575]	[0.50265]
LDACAID(-2)	0.031181	-0.005178	-0.06178
	(0.08051)	(0.25953)	(0.14942)
	[0.38731]	[-0.01995]	[-0.41347]
LNONDACAID(-1)	-0.026707	0.731539***	0.061909
	(0.04999)	(0.16117)	(0.09279)
	[-0.53420]	[4.53904]	[0.66720]
LNONDACAID(-2)	0.024060	0.131093	-0.060219
	(0.04679)	(0.15085)	(0.08685)
	[0.51417]	[0.86903]	[-0.69337]
LMULTIAID(-1)	-0.127408	-0.124836	0.291114*
	(0.08503)	(0.27410)	(0.15781)
	[-1.49844]	[-0.45543]	[1.84469]
LMULTIAID(-2)	0.250111***	0.195827	0.331864**
	(0.08440)	(0.27209)	(0.15665)
	[2.96328]	[0.71971]	[2.11845]
C	0.647498	0.414308	1.956006**
	(0.49553)	(1.59744)	(0.91971)
	[1.30668]	[0.25936]	[2.12677]
R-squared	0.841982	0.740762	0.527140
Adj. R-squared	0.817032	0.699830	0.452478
Sum sq. resids	3.359455	34.91253	11.57266
S.E. equation	0.297333	0.958515	0.551855
F-statistic	33.74657	18.09725	7.060352
Log likelihood	-5.467348	-58.14136	-33.29686
Akaike AIC	0.554104	2.895171	1.790971
Schwarz SC	0.835141	3.176208	2.072008

***, **, * represent the significance at 1%, 5%, and 10% levels respectively.

Table 23: VAR Residual Normality Tests

VAR Residual Normality Tests			
Orthogonalization: Cholesky (Lutkepohl)			
Component	**Jarque-Bera**	**df**	**Prob.**
1	11.10632	2	0.0639
2	1.570023	2	0.4561
3	0.117062	2	0.9431

Table 24: Granger Casuality among DAC Aid, Non-DAC Aid, and Multilateral Aid

VAR Granger Causality / Block Exogeneity Wald Tests
Sample: 1991 2013

Dependent variable: LDACAID

Excluded	Chi-sq	df	Prob.
LNONDACAID	0.306531	2	0.8579
LMULTIAID	8.856179	2	0.0119
All	9.150358	4	0.0574

Dependent variable: LNONDACAID

Excluded	Chi-sq	df	Prob.
LDACAID	0.065943	2	0.9676
LMULTIAID	0.520080	2	0.7710
All	0.529437	4	0.9706

Dependent variable: LMULTIAID

Excluded	Chi-sq	df	Prob.
LDACAID	0.274188	2	0.8719
LNONDACAID	0.516305	2	0.7725
All	1.389628	4	0.8460